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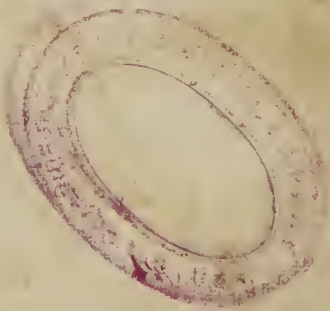

THE

NATURAL PHYSICIAN'S

BOOK OF REMEDIES.

CONTAINING

A PATENT RIGHT

FOR

DOCTORING.

BY JOSEPH BAKER.

Printed for the Author—Chillicothe, Ohio

In writing the following piece, I shall try to comprehend as much as I can within a few words, so as to give some leading traits of my experience in Medicine; and of the cause of Diseases, with the medicine and management—with a few of the outlines of our bodies; its organization with the state of the blood, under different circumstances—and shall try to be as plain as possible, and avoid repetition:

I was born in the state of New York, July 10th, 1788; and was brought to Virginia at 5 years old, and continued there till I was 16, and then removed to the state of Ohio. My father was generally known to be a hard working, honest, poor man. And the second season that I lived in Ohio, I had a severe spell of the fevers, and in a short time it turned to the ague and lasted near three months; and I discovered that it was quite common for people in this country to have the ague or fever in the fall of the year. And I had an attack of it for near every year for seven years, till the war; and I felt a perfect dread of mind as the fall of the year come round, for fear of the ague. The fall after the war was declared, I went out as a spy, and continued there about six months. And a great deal of the time was in company with some Indians, and spent a number of nights in free conversation with them on different subjects. I could see their management both in cold and wet, as well as dry weather; and their form of cookery, as well as that of eating and sleeping, with their common deportment in life. But very little was said about Doctering, except that of sweating for fevers, with some simple roots made use of, and a few remarks on the subject of wounds—particularly that of Capt. John Tittle, who said that 'White man cut his head open with a big knife, in the battle with Anthony Wayne.' They had healed up the wound, but the scar was extremely large. I suppose that the man that struck him with his sword, thought he was dead, and had rode on and left him. Captain John 'said that when he came to himself, White man was almost out of sight, and that he rose up and took back.' Though it is possible that the scull had not been opened, but jarred very much.

When our tour was out, my brother, Jacob Baker and myself started for home. And he had the Typhus Fever, or what was called the Cold Plague; and I had him hauled to the settlement of Urbanna, and he lived till the fifth day after he reached there, and died. This took place, to the best of my recollection, about the first of March, 1813. About the first of May following, I had a sister

taken with the same disease; and after trying several physicians to no effect, I went to a Water doctor; and after he examined her water, he said she had taken cold, but was not dangerous; and he gave medicines that he said would help her immediately. I went home the same night and found her dying; and she expired before sunrise in the morning. By this time, I concluded that the doctors knew very little about her disorder. In a few days I was attacked with the same disease; and I concluded to try an experiment—that was, to drink spicebush teas, and sweat; and I did so, and felt relief. In a few days, through exposure, I took a relapse, and tried the same remedy, and got better immediately. I undertook to cure some people of the Ague, after this, and tried seneca snake root; and found it answered a better purpose than the spicebush. I had heard my mother talk about liverworth as a medicine, and made a trial with this; and found it answered the same purpose. I tried a number of cases for the Pleurisy, and found my means were effectual. There were some cases of the Jaundice come to me; and I tried a simple cure—that was to drink wild salendine, or some calls touchmenot; and found it answered some purpose, by following the rule of keeping the stomach partly empty.

Among other cases, was a man of the name of Thompson, that had had the Yellow Fever at New Orleans, and had got better. He was brought up the river to Portsmouth on a steam boat, and thence in a carriage near Circleville. He took a relapse, and had several physicians attending on him; and at length, they gave him over. He was blistered till his head was nearly naked of hair; and he was a mere skeleton. He was brought in a carriage to my house, and I tried my new plan with him; which recovered him immediately to perfect health. This, with many others, one for the Lockjaw, some for Fevers and Rheumatisms, and I had never charged a person a cent.

In the mean time, there was an Indian doctor, so called, that joined the church where I preached, who proposed to tell me his system of doctering—and at length he did; but as I did not expect to practice, I did not pay as much attention to writing it down as I ought to have done; and have forgotten some things. His system was like many others, had more the name of 'Indian Doctor,' than a reality. There was also a woman, that joined the church where I preached, that was part Indian, and professed 'Indian Doctoring': and had doctered considerable to a good effect. I made myself acquainted with the substance of her system, and have found it to be nearer the system than the other.

As I was travelling in the state of Indiana, I fell in company with a man from the Arkansas country; who was acquainted with the Indians in that place, and also their manner of doctering. He,

among other things, made some statements about the Indians making use of *lobelia* as an emetic; and named several other traits of their doctrine.

About this time there was a woman that was said to have the consumption very bad, so that they sat up with her, expecting her to die. They sent to my house and I was not at home; but my wife gave directions and means that was said to have saved the woman's life. She has recovered principally of her disease, and is still living.

In my travels I got hold of Richard Carter's Indian Doctor book, and have examined it in some degree. And also, Doctor B. Rush's book on Indian doctoring; which gives a better account of their managements, than it does of their doctrine—though it says some things on both that may be believed. On examining Samuel Thompson's system, I consider he got a part of it from the Indians; or that some of his medicines has originally been found out by them. I will name some of them,—The Puccoon root is one, the Lobelia is another—I have a book that names this herb as used among them several years earlier than the date of his discovery; and I fancy that neither the Indians nor Thompson ever knew how to use this herb to advantage, as it will be found in the sequel of this book. The Indian Turnip is another; and the way of applying cold water in time of their sweating, is leaning towards their practice or customs; but their way of applying it is not as good as the Indian's.

It is upwards of sixteen years since I commenced preaching, and have travelled some every year since, and some in several states. I have attended abundance of funerals in different parts, and visited the sick of almost every disease, have commonly inquired into the nature of the complaint; and after the management of the physician, these with reading Goldsmith on Animated Nature, was no little assistance to me. I have taken no little pains to make myself acquainted with the geography of civilized nations, as well as that of savages and barbarians. I have paid particular attention to the changes of climates, the effect on my own constitution, and the revolutions of the blood under different circumstances. These, with reading a number of medical doctor books—one on Chemistry, one on Surgery, one on Midwifery, and others on Practice and Lectures, and M'Kenzie's Receipts, to make all kinds of useful medicine. From these fountains I have gathered the summit of my knowledge in medicine. But the vast contradictions that existed in medical works, and the mysteries with poisoned medicines, in some degree confused my mind; and if my confidence had not been good in the plan that I practice, before I got acquainted with the medical practice, I should have sunk in a hopeless state, of ever being useful to the world in this way. But long experience and repeated trials had carried such conviction to the mind of the reality of this system

that a cloud of contradictions and confusion could not remove them They are become rooted in me as deep as my mental faculties. I read a history of the vast number of plans that have been practised for three thousand years back, and found so many strange notions that have been afloat in the world, and the effect of them, I thought we were rather losing ground instead of gaining; that the practice of Galin, that continued in use probably near fifteen hundred years, was better than the present practice of medical doctors, and the practice of the Egyptian physicians were still better; that the grand point was settled among them that the blood was the life, which is so much doubted in our day. They made use of fasting to clear the stomach of filth, so that nature had time to do this grand business for herself. They made use of plasters, such as the balm of giliad, to open pores and assist nature in several ways. Spikenard was another of their medicines; washing and bathing the body belonged to their means. They had a way of preserving dead bodies, that far exceeds any present plan, yet I discover that there is many a useful point in the medical system both of management and medicine, that if they could be culled out of the system, would prove very useful; but while poisonous pukes and physics, and mercury for salivations, are the leading points of the system, they may in vain try to preserve it in credit.

There has been a number of enterprising men who have written on the subject of medical doctering; among others was Dr. B. Rush, of Philadelphia, and Dr. William Cullin, and a number of good arguments is produced by them. I have thought that it is like a good story on a bad cause, while the leading traits of the argument carry the idea that disease is to be thrown off either by an emetic or purge, or by the way of the glands; which reason and experience proves that disease must be thrown off by perspiration. Dr. Cullin, in my estimation, deserves more credit for his Materia Medica, for some valuable ideas, and more than I had got from any other medical book; but, at the same time, there are so many mysteries and dark sayings in his large work, that it did not hold forth as much information as ought to be expected, and, at the same time, overstock the memory with subjects. And to add to the difficulty, he has placed on it a very difficult phraseology; and still to add to the difficulty, he has spoken many things in a dead language. But things that every body is equally interested in, ought to be spoken in a language that they could understand. I have now given a brief account of my acquaintance in medicine. I shall now leave this subject, and commence some instructions on the subject of doctoring. I shall commence like teaching a child his alphabet in a plain way. The very ties of nature lead us to wish to assist one another in time of sickness, and if we know any remedy, we want to have it applied

The first and greatest thing with man, is the salvation of his soul, as Christ says, first seek the kingdom of God, and all these things shall be added unto you; and the next of importance is the health and ease of our bodies, which is every body's business to attend to with prudence and attention: but these two points, and especially the first one, is apt to be neglected, and our attention fixed on objects of less importance.

I shall set it down as granted that the blood is the life; first, because it is a bible doctrine; secondly, because it agrees with the whole system of living creatures, both of man and beasts; thirdly, because it agrees with the fluid substance that circulates in the herbage and inanimate part of creation. If this is admitted, the first thing that follows is, the formation and revolutions of the blood. The blood flows from the heart through the medium of the arteries, which in common is near the bones, to the extreme parts of the body, and absorbs in the flesh as it passes out, and the veins gather it and directs it to the heart again; thus, when we bleed a person, we tie round the limb only tight enough to stop the vein—but if we tie tight enough to stop the artery, we will get but little blood. There is a great quantity of water that passes through the canals of the stomach, and is thrown into the blood in an ordinary state of health; and a part of this water passes off by urine, and another part passes through the pores of the body. This is the most critical discharge of any, and there ought to be more attention paid to it than is. Here we notice that there is no singular channel through which the water passes from the stomach, but soaks through the intestines through small pores, and is united with the mass of blood; and the great means of health is to keep the blood, which is the life, pure, which is made up of every substance which is thrown into the stomach. This may convince us of the impropriety of poisonous medicines, which of course forms a part of that blood that is the life and animates the system. The Thomsonian system, that says heat is life and cold is death, is without foundation. If this was true, put a person in the fire and they would be sure to live. But it is true that life requires a certain proportion of heat, and sometimes more than we are aware of; and it equally leans on the other elements, the water and air, without which it would be impossible to live. It is evident that extreme heat will destroy life sooner than extreme cold. The arguments in favor of either air or water has as much ground to stand on as Samuel Thomson: but the three elements in connection with the organized system keep up the powers of animation. Doctor Rush's argument in favor of life being a forced state from the brain by the nerves, is as feasable, and more so, than Samuel Thomson's; but I feel perfectly satisfied that the blood is the life—this fact is recorded in the bible in a number of places. These elements operating upon

the organized system, with a proportion of matter that passes through every part, keeps her in motion. This matter is conveyed through the system by the means of a watery or fluid substance that flows through the system regularly. The formation of our system and the means of life shows the wisdom of that God that made us; and the business of a physician is not to correct the system nor to form one new part to it, nor to change the circulation of the blood from a natural state or course, nor to disturb one of her parts; but rather to assist her by removing the obstructions that is in the way. We should examine where the obstructions are that is the cause of disease, and try to find what has disturbed nature's rules, and use the best means to remove it. I expect the present peace to be the beginning of a new system that may grow till it will arise to some degree of perfection. The most common plan of curing diseases appears to be contrary to nature and dangerous: if a person apply to the medical doctors, it frequently appears to me as a man setting up his life at stake, in which he stands a chance to lose his life; and if he gains it, the constitution is injured and sometimes irrecoverable. The vast divisions and contradictions in sentiments that exist among the medical doctors, both in their practice and books, is sufficient to convince us of the impropriety of their system, and, according to Christ's sayings, will ultimately fall; for he says, that a house divided against itself cannot stand. The administration of poison into the stomach, which immediately is introduced into the blood, which is contrary to the life of man, and assists the complaint instead of the patient, and is contrary to reason; that the medicine that is contrary to life is called up to assist. The numerous accidents that has happened in the country among their practice, has prejudiced a number of people so that they call on no physician when they get sick, and a great number of the rest is at a stand what to do in time of sickness; while others are loaded down with the effects of it, and are not able to extricate themselves; and when poison is introduced into the stomach, nature has to overcome both the disease and medicine, or the patient dies. I suppose that the face of nature has produced her own remedies, and in a general point of view, medicine should be taken in a natural state like the productions that are used for diet. The effect of a distillation to get out the spirit of the herb, or seeds and root, may answer in some cases; but it frequently changes the substance. Just observe the different effects of rye or corn, and then try the spirits of them, and see the effect on the stomach and blood. There are a number of things that the substance flies away in the vapor in a state of distillation. Many of those roots and herbs that I make use of cannot be applied to advantage in any other way but in a natural state. Lobelia is destroyed in a great degree by warmth, much less in a state of distillation; the liv-

erwort is nearly so, and there is but a few medicines that possesses the same quality after going through a state of distillation as before. The human stomach is the best judge of medicine, and good experience is the best way to try their virtues and effects on the human body; for the virtue of some is in the spirit of the substance, and others it is in the solid parts of it; and the sensitive powers of the stomach will soon find out the virtues. The stomach always possesses a portion of acid in an ordinary state of health, and it is said that this is governed by the quantity of gall that is spilt in it, and the gall is generally governed by the strength of the diet we live on. If we live on salt and fat diet, our gall is apt to over spill and sour the stomach too much. It is safer to live on fresh, weak diet in general. The stomach is in some degree like a still; when it does not sour enough, we are not well; and when it over sours, we are also unwell: but if it can strike a right sour, all is well, and the stomach will discharge herself right, and there is a kind of vapor that rises up and moistens the coats of the stomach and pipes even to the mouth; and this watery substance is drawn through the canals of the stomach into the blood by large quantities; and discharges, part by way of urine, and part by perspiration. The quantity of watery vapor that rises up is governed by the sourness of the stomach; and if substances that we eat has a tendency to stop up the canals of the stomach, this watery substance frequently raises more plentiful to the mouth, and is called a water brash, and so it acts when the stomach over sours. Sometimes the canals of the stomach calls for more water than raises up in vapor; then the driness of the throat and mouth demands a drink of water: at other times there is a humor settled on the coats of the stomach, which agitates it, and it throws up all the substances that is in it or nearly so. And at other times, the humor strikes in all the way through the hollow of the body; from the throat to the rectum or lower part of the body, and this humor is on the inside of the bowels. If this humor is in the pipes and throat, it causes a hoarseness and injures the voice, as well as often produces a cough. If it is in the stomach, the effect is a puking; and if it is in the bowels, the effect is a purging; or if in the stomach and bowels at once, the effect is a cholera morbus. I am of opinion that this disease can be cured by a regular course of medicine, and sometimes by one operation of sweat, and then give a few doses of No. 1, and keep a moist sweat for a while. But the most common cause of disease is too much matter in the blood, that shuts up the pores of the body, and throws people into different situations in life. We may draw some conclusion of the violence of the complaint in a thin, clear skin person by the color of the blood through the skin: if it looks dark, you may suppose they are dangerous, and more so when it looks cloudy. In diseases of less violence, the skin

is more clear, and has a more common appearance; and other complaints come from obstructed perspiration by means of cold, and some by humor in the blood struck out against the skin, and thus shuts the pours of the body. In this case there should be a driving medicine taken inwardly to keep it out, and the pores opened by doses of No. 1, and steam with the stomach empty, or nearly so, of food, and it to be fresh and light, which is made use of. Both the creation of humors in the blood, and the striking them from the inside, are from various causes too many to mention in this short work; but the most leading causes that create humor, are as follows: first, living on salt, rich diet; secondly, eating too many kinds of diet at a time; thirdly, keeping the stomach overstocked with food too long at a time: fourthly, drinking too much spirituous liquors, or what may be called hard drink; fifthly, the measles, sickly and unhealthy climates, and bad water. The next is what strikes them in on the bowels or inside: firstly, cold on the outside; secondly, large draughts of cold water in the inside; thirdly, percipity or sulphur on the outside; fourthly, doses of physic which purges the inside. But there is a great difference between purging the body and purging the blood, and especially if the body is purged with a poisonous medicine; for the blood will gather a part of that poison out of the stomach, and carry it all through the whole body. And this is not the only bad effect: but if we purge the body while the pores are shut up, it frequently draws diseases in on the inside; because diseases frequently draw near to the place of discharge, and sometimes even affects the part where the discharge is; and the weight of that substance that passes down the intestinal canal is more forcible of itself than any other discharge of the body. But it needs force, because a thick morbid substance will not pass like a watery fluid; and for this reason the passage by urine is not so often obstructed. Whatever increases the motion of the bowels, generally causes a purging; and when poison is passing through the bowels, they are roused into motion to resist its evils, and it is very wrong to force nature, instead of assisting her to do her duty or discharge her office. We may assist her by injections, which will never have a bad effect, and sometimes we can administer an oily substance that will make the bowels more pliable and capable of moving. The effect of administering hickory bark lie in small portions, as will hereafter be described, removes the common matter from the insides of the bowels, in a degree, and renders them more slippery and limber, and is an assistance in purging, and so is fresh broths in some degree; and there are certain medicines that either draws out or drives away the stagnation of the bowels, and adds sensibility, which quickens the bowels that are not poison. I will name sulphur as one, elder bark as another, and castor oil adds to the mo-

tion of the bowels. There are many others too tedious to mention at this time. There is one rule that we may judge these means by —that means that adds sensibility and quickens the bowels: in repeating the doses, less will answer, and that means that forces nature; nature braces against it, and you must increase your doses as you repeat them. But I am fully convinced that there is more purging done by doctors than is profitable, and not one sixth as much sweating done as ought to be done for the health and safety of the people; for the discharge through the pores of the skin is the most difficult of any other, and, according to nature's rules, should be almost without intermission, while the other discharges have their proper intermissions; and to add to the difficulty, the discharge by perspiration is in a degree invisible—and, it is thought, that something like one fourth of all the watery fluids that are taken into the mouth ought to pass off this way in an ordinary state of health. And what makes it difficult, it depends on the force of the heart, that drives it not only down but upwards to the surface of the body; and there appears to be a balance between the motion of the heart and the opening of the pores, that what ever causes the heart to motion has a tendency to open the pores; and moistening the skin with warm steam, has a tendency to soften it, and the pores are easier opened; and the steam going into the heart department improves its motions very much, and of course produces a free perspiration. The medicine called the first part of the composition, or No. 1, opens the canals of the stomach and skin, and assists in this process. By purging the stomach, we may move the fountain of filth out of which the blood has been already formed; and if we move it with a poisonous medicine, the blood in the mean time will receive a part of that poison, and of course is worse than before.

Now, the grand question is, which way shall the filth that is already in the blood pass off? Shall it be drawn back to the stomach from whence it came, and pass off in that way, which is contrary to nature; or shall it continue to pass right through the pores of the skin, and be discharged in that way. If there is not a regular discharge through the pores of the skin, nature becomes unharnessed, and instead of throwing her substances towards the surface of the body, they are thrown back on the stomach. Goldsmith says, that there is no man that starves to death; but when the stomach gets empty, the poison out of the body gathers in and poisons them, and they go distracted and have strong symptoms of poison. This is the way that people lie and eat nothing of notice, and are not hungry, that are said to be fed by sickness; but it is by operating contrary to nature. I have known some that were said to lie for weeks and receive very little sustenance, though they had been hale, hearty persons immediately before, and they repeatedly took physic and purge

ed in the mean time, and often was puked; and there appeared plain discoveries of filth still coming from the stomach, and the patients still reducing in their flesh. But this has not been the case with one of my patients, though they have amounted to eleven or twelve hundred, and near ninety of them of the consumption. It is very evident to me, that nature should keep her regular course in sickness. If the stomach is over stocked with filth, the sensitive powers of it will find it out, and nature will make her motions to throw it off; then we should assist it by administering an emetic, which, if done right, will not only clear the stomach in a few minutes, but will be apt to cause a free perspiration. Clearing the stomach of filth will prevent the blood from being more filthy, but it does not remove that filth that is already in the blood; and as the blood has but two natural discharges, reason tells us that she must discharge her filth one of these ways, that is, by perspiration or the way of urine; and as I fancy that none will argue that she must discharge her filth by the way of urine, then it follows that it must be discharged by way of perspiration. I did think of giving some general views of the different plans of doctoring in the present and past ages, as far as I knew them, to show the propriety and impropriety of their systems; but in the present piece I shall have to confine myself to a small bounds for the want of time to write a larger one: But the blinded way that many of the doctor books are wrote in, is calculated to keep a great body of the people in ignorance. For often when they touch a particular point, in which they think the people may gain some useful knowledge, they have it printed in some dead language, or use some strange phrases; and every medicine that is poison, is opposite to life, and of course assists the complaint instead of the patient; and except nature is capable of overcoming both the disease and medicine, the patient dies. I have thought that there are many cures among them like many in the country, that are taken up on uncertain premises, that persons happen to take some certain means about the time that nature has gained her point and overcome the disease, and the whole cure is ascribed to whatever means they have taken. One or two circumstances like this establishes the means they have taken to be a sure cure, when at the same time likely it is right opposite. We have no right to trust the virtues of medicines without proper experience; but when diseases are in the inside of the bowels, my plan is to drive and sweat all out; but when on the surface of the body, though I try to keep the person at least once a day in a sweat, so as to keep up this discharge, I frequently give No. 4, which is a drawing medicine, and moderately purges. I have made a few remarks on the outlines of this system, to show that it agrees with reason and with the bible. I want those that practice this system to pay particular attention to the rules laid down, and we will

depend alone on the God of the whole earth for his aid and blessings; and as we shall have a great number of the learned of our day to encounter, let us be careful not to bring a reproach on the system; and though the system may look new, and you cannot see into the particulars, I will assure you that all the general or leading points have been faithfully tried. Do not let this baffle your faith, because there is but one general way of cleansing the blood; for Paul says, that God has made of our blood all the nations that dwell on the earth; and it is thought by the strongest minds that the medicine that will cleanse the blood, will cure diseases that are opposite to each other, though I shall change the medicine as well as the management in a degree. The medical doctors have one rule of salivating to cleanse the blood; that is, to throw off diseases by way of the glands: but mine is to throw off diseases by the pores of the skin. And for the purpose to discharge diseases by this way, I will lay down a plan: there is a balance between the motion of the heart and the opening of the pores of the skin; the heart acts something like a pump, that throws the blood out to the extreme parts of the body, and forces the water through the pores of the skin; if any thing should retard its motion or power, the pores are no longer kept open, and the blood that should fill the extreme artries and veins now fails to flow out as before, and crowds more on the insides, and the filth that is in the blood gathers round the heart and stomach, and the patient feels sick at the stomach. And if the motion is much retarded, the feet will immediately get cold for want of sufficient blood. This coldness begins in the feet, because they are furthest from the heart; and as the heart motions slower or weaker, this coldness pursues up the legs, and, as it passes the knees, it immediately commences on the fingers; and as it still grows slower or weaker in motion, this coldness pursues up the arms and thighs into the body, until death is the consequence. There are two reasons why the blood is not thrown out: one is, a weakness of the nerves that causes the heart to motion weak or slow; the other is a thick, stagnated blood, that is hard to throw out. There is more to be done by improving the motion of the heart, than what is generally believed: long experience has very much enlarged my views on this subject, so that I suppose that the very symptoms of death has been baffled; as the blood flows out into the limbs, the cold, numb, death-like feelings vanish some times, and the sickness driven from the stomach; and in the mean time nature discharges her surplus water through the pores of the skin.

I have cured the cholera morbus, when the limbs were cold, without any medicine, by improving this motion; and have thought that the sick stomach, or milk sickness, could be cured in the same way. I have known some take large doses of an emetic, and in the height

of pukeing it was stopped this way. This has been tried to my satisfaction, and the same means will commonly stop a cholic.

A person that is acquainted with drawing water with a pump that leaks, may form some idea how the heart throws out the blood. If a person works a leaky pump slow, the water sometimes falls back or leaks as fast as they raise it, and they gain none; then, for the purpose of gaining on the leak, they must improve their motions on the pump, and thus draw it faster than it can leak. So it is with the human body: the blood is thrown out through the arteries, and the veins gathers it, and brings it back; and if we want to fill the extreme vessels, we must increase this motion so as to throw it out faster than it returns by the veins—then to improve the motion of the heart, is as follows: covering a person all over when he is sweating, and having the steam to go immediately to the heart and lights, warms the blood at the fountain, and of course sets the heart to motioning; and as heat has a tendency to drive diseases, it is proper to apply it to the heart, so as to drive disease from the seat of life towards the extreme parts of the body; and as heat has the tendency to make the blood more active to flow, it is necessary to apply it all over the body; so while it warms the blood and increases the motion of the heart, at the same time it moistens the skin, and thus opens the pores where it is applied with steam; and as whiskey or camphor is driving, a small portion of one of them may be mixed with water for steam, and the smell of these will help to remove the sickishness of the smell of the sweat, while the vapor goes to the seat of life. But persons who are not in a pukeing position will find it an advantage to take a dose of No. 1 before they sweat, which will not only assist in sweating and driving disease from the stomach, but will increase the motion of the heart for near twelve hours afterwards. Though doses of it may be taken at any time before or after they sweat; or, if they do not sweat regular, make use of a drink of warm tea to warm the stomach on it.

There are three parts that belong to the blood; one is the red part, or what some call the red gobbet; the second is the matter part, which some call the gluten, and others the crassamentum; the third is the water part, that some call the serosity. I suppose that one point in doctoring is not only to know that there are such parts in the blood, but to know how to improve or diminish either of these parts. I have thought if we knew these things as perfectly, we could guide people into health, beyond what could be expected. I have not mentioned this point because I considered myself master of it, but that it should not be altogether neglected, as it has too often been; but that it should be the business of some industrious minds that perhaps are deeper than mine. I will only conjecture a few things on the subject. In the first place, I suppose, that the

red part is the most essential to life, and I consider that it is cohesive, or has the property of sticking together more than the others; and the filth that it is affected with most is humorified; and I suppose that sassafras bark, prickly ash bark, or horse radish root, has a tendency to increase this part of the blood, in a degree, if taken inwardly; and I suppose that it is necessary to improve it in cases of relaxation or stagnation of blood; and the way to improve the gluten is to make use of wild or tame comfrey root inwardly—this only should be done where a person is well, and cannot sleep sufficiently. The way to improve the water part or the serosity, is to live on a weak watery diet: the way to diminish either the red or watery part, is to make use of the lancets, as they run freer from the veins than the gluten; and the way to reduce the matter part, is a regular course of medicine, as will be found in the patent—that is, to lower the fountain, that is the stomach of solid food, so that it will not throw out as much matter as usual. The doses of No. 1, that belongs to this course of medicine, with the sweats, throws off abundance of matter from the blood.

The gluten of the blood is a kind of oily matter, that the other two parts, where it is in a pure state, is willing to mix with; but sometimes there appears to be a matter in the blood that the other parts appear to disown, I suppose, because it is not of the right kind. In this case each part appears to separate to themselves in a degree in the body. This can often be discovered in the face, and sometimes in other parts, of a thin, fair skin person; they appear to be spotted or cloudy—sometimes, one spot is red, another purple, and some pale—the pale spots is the water, the red is the red part of the blood; and the purple is the matter part. We may often see these purple spots in drunkards, as hard drink has a tendency to create too much matter in the blood: this is what sometimes increases his flesh, makes him appear to be bloated, and, having too much matter in the blood, is the cause of all stagnant complaints, as well as typhus fevers, and sometimes shuts the pores of the body. The blood, which is the life, is out of order while the component parts of it is not mixed as they ought to be; for there is more dangerous diseases that come from this cause than any other one cause. It is necessary not only to know that there is such a surplus matter in the blood, but also to know how to remove it. As the humor in the blood can be removed by reducing the system by physicking, diet, and letting of blood. But I have seen no plan that reduces the matter faster than the other two parts, or in other words to remove the surplus matter from the blood, that is no plan that man has devised, except the one that I have layed down. But nature has had a plan, that is to throw it off by the way of the glands, under the name of a bad cold. Sometimes people have a cold, for the pores are shut;

but others are open, and we can see a surplus matter coming from the head and breast, sometimes in abundance. Do we not learn from this that nature is throwing off this matter? And this is her way of dischage, when she does not discharge it fast enough through the skin. A person can satisfy himself on this subject by drawing blood from another in the commencement of this disease, and let it get cold; then look at the quantity of matter in proportion to the other two parts, and when this disease is done operating, try the same experiment of drawing blood from the person again; then examine the proportion of each part, and see if nature has not discharged some of her surplus matter. Sometimes this matter, not having a free discharge from the lungs, it affects that part, and becomes a consumption, or the person is affected for a longer or shorter time. But the medicine I have called No. 1, or the first part of the composition, has the tendency to open the pores and drive out this matter in abundance, and at the same time destroy the humor which is in the blood faster than purging.—Take 3 or 4 doses of this medicine, going to bed and covering a little warmer than usual, will produce a copious sweat in a few hours, and in the mean time the surplus water and matter will both be driven so near the surface of the body, that the person will feel cold next to the skin. Though this process throws off some matter and water, yet I prefer a regular course of medicine, in which there is only two doses of this medicine given in twenty four hours, and the rest is done by other medicine, steam and management. I make use of the three elements on which life so deeply depends; that is fire, water and air. I make use of fire and air to erase the watery vapor, and place it near the seat of life, that is the heart; while the air blows the heart and lights the fire, warms the whole system; and the water moistens the glands as well as the surface of the body, and passes through the whole system; while it assists in opening the pores by moistening the skin, it, with the medicine, all assist in strengthening the motion of the heart. I have said that the red part of the blood is cohesive, though the skin appears like a seive, that will let water and matter pass through: but the red part is retained, and must be reduced by other means, if at all. Another advantage in warming the blood is, that it makes it more active to force the water through the skin, and another equal advantage is, that it assists in mixing the component parts of the blood well together; and it also assists in forcing that part that remains in the system out of the arteries through the flesh into the veins, and thus forms its evolution. As I have now made some mention of what will improve, as well as what will diminish the several parts of the blood, and expect this subject will again be embraced when applied to certain diseases. I will leave this point; and lest there should be some doubts whether the gluten of the blood can be forced through the pores of the body, I will produce

some evidence; that is, while a person whose blood is foul is going through a regular course of medicine, the matter in the mean time will cause the skin to be sticky, and the clothes that are next to them will frequently stink, even some time, till it becomes disagreable to stay in the room. I have ordered some to be washed once a day to remove this matter and stink from them; though there are none that smell so disagreeable as the real typhus fever. Another evidence that the gluten of the blood is removed in this process—that is, if any person should doubt, let them draw a small quantity of blood before this process, and examine the component parts when it is cold; and after the process, try the same experiment, and see if there is not less matter in the blood after than before. When the blood is purified by subtracting the matter and humor from it in this way, then improve your diet gradually and take two doses of No. 5, which will strengthen the nerves as well as improve the blood in proportion.

This appears to be the only wise means of cleansing the blood. But lest this system should be disputed, and some conclude the plan is wrong, and that we should purge the body more to get the blood clean, I will say something more on the subject, as custom or habit has a great impression on our mental faculties; as the practice of purging has been a long time held up, the subject is more difficult than it otherwise would be. In the first place, I would ask the question, which way the fluids pass through the body? Doth it pass from the stomach towards the places of discharge, say the bladder and skin? or, doth it enter them first, and work towards the stomach? I think the answer will be by all, that it enters the stomach first, and passes out towards the skin; that this is the natural course, there is no room to doubt. If the blood discharges itself this way, it follows that if any filth is removed from the blood by a purge, it is contrary to the laws and rules of nature. I will readily admit that the filth that is already in the stomach and bowels, may be removed in a degree by pukeing and purging, which may prevent the blood from getting worse than it is. But the question is, how shall the filth that is already in the blood pass off? Shall we purge it off contrary to nature's rules, or shall we force it through the skin? If the stomach is one department in the body, and the arteries through which the fluids pass is not the same but another, it follows then that cleansing the stomach doth not cleanse the blood, no more than washing one house cleanses another. The means that are intended to cleanse the blood must pass through it as well as the arteries through which it passes; and as water is a cleansing element, we should make use of it, and with it administer such medicine and means as should give the water a free passage through the organs of life, and such as would rouse the blood into motion, as it is reasona-

ble that we cannot cleanse without motion. But to cleanse one room so that another might be clean, is not so unreasonable as to poison one that another might be cleansed, and at the same time the poison have access into the room that should be cleansed, and possesses no cleansing power. But I wish to be far from accusing any person of using poison to cleanse the blood; for I believe that there are some of each order that will not do so on any condition.

I have made as many remarks by way of introduction as are necessary: I shall immediately introduce a copy of the patent right for Doctoring, which is a better plan of Doctoring of itself than many others; but the rest of the book may be a great assistance.

THE UNITED STATES OF AMERICA.

To all to whom these Letters Patent shall come:

WHEREAS, JOSEPH BAKER, a citizen of the United States, hath alleged that he has invented a new and useful improvement in Medicine; which improvement he states has not been known or used before his application, hath affirmed that he does verily believe that he is the true inventor or discoverer of the said improvement, hath paid into the Treasury of the United States the sum of thirty dollars, delivered a receipt for the same, and presented a petition to the Secretary of State, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose: These are, therefore, to grant, according to law, to the said Joseph Baker, his heirs, administrators, or assigns, for the term of fourteen years from the fifth day of May, one thousand eight hundred and thirty one, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement; a description whereof is given in the words of the said Joseph Baker himself, in the schedule hereunto annexed, and is made part of these presents.

In testimony whereof, I have caused these Letters to be made Patent, and the seal of the United States

to be hereunto affixed. Given under my hand at the City of Washington, this fifth day of May, in the year of our Lord one thousand eight hundred and thirty-one, and of the Independence of the United States of America the fifty-fifth.

ANDREW JACKSON,

By the President.

M. VAN BUREN,
Secretary of State.

City of Washington, to wit:

I do hereby certify, that the foregoing Letters Patent were delivered to me on the fifth day of May, in the year of our Lord one thousand eight hundred and thirty-one, to be examined. I have examined the same, and find them conformable to law, and I do hereby return the same to the Secretary of State within fifteen days from the date aforesaid, to wit: on this fifth day of May, in the year aforesaid.

JN. MACPHERSON BERRIEN,
Attorney General of the United States.

The schedule referred to in these Letters Patent, and making part of the same, containing a description in the words of the said Joseph Baker himself, of his improvement in medicine.

To all to whom these presents shall come:

Be it known, that I, Joseph Baker, of Jefferson township, in the county of Ross, and state of Ohio, have invented a new and useful improvement in Medicine, and that the following is a full and exact description of the construction and operation of the said Medicine improved by me,

The schedule referred to in these Letters Patent, and making of the same, containing a description in the words of the said Joseph Baker himself of his improvement, being a mode of preparing, mixing, com-

pounding, administering, and using the Medicines herein described, in the manner and in the diseases hereinafter mentioned; that is the mode of preparing and compounding medicine for an emetic, and also to cause a free perspiration, to be administered in diseases caused by cold and obstructed perspiration, such as fevers, rheumatisms, dysentary, dropsys, consumption, pleurisies, bold hives, and all stagnated com plaints, with some others.

N. B. All roots, barks, and herbs must be first dried, pounded in a mortar, or ground in a mill before they are made into medicine.

Part the first.—Take seneca snake root, one ounce; take liverwort tops, three quarters of an ounce; take robbins' plantain roots and tops, one quarter of an ounce, mix these well together. This forms the first part of the composition.

Part the second —Take the bark of the root of sassafras, a half ounce; take the inside bark of wild cherry, a half ounce; take the inside bark of elder, a half ounce; take sulphur or brimstone pulverized, a half ounce, mix these well together. This forms the second part of the composition.

Part the third.—Take lobelia, or what may be known by the name of Indian tobacco, the tops gathered in September, two ounces. This forms the third part of the composition, which is to be administered all together, or in parts, as the nature of the case may require.

It should be remembered, that equal portions of these three parts forms the whole composition of medicine.

It should be remembered, that a dose of either of these powders for an ordinary constitution is an average tea spoon full, and allowance should be made for the different constitutions of people.

When the violence of the disease requires a speedy

remedy, and nature calls for an emetic, and there is an obstructed perspiration, it is necessary in this case to give a dose of powders of the whole composition, and wash them down with half a pint of cold weak lie, made of the bark of shellbark hickory; and if this dose does not operate as an emetic in fifteen minutes, give a second dose, with a less quantity of lie, or just enough to wash it down; and if it doth not operate, in the same time you may try the third and fourth on the same rule, which will scarcely fail. This process commonly produces a free perspiration. Then continue the process by giving a dose of powders of the first part of the composition, and in thirty minutes sweat until you get a free sweat over the body. The way to sweat is to cover the person all over, and make use of two oven lids, one at a time, have the feet in warm water, and sit your oven lid under the cover, and form a mixture of one third whiskey and two thirds water of about three gills, and steam it on the oven lid as they can bear it, and repeatedly sup warm tea; and when done, put them to bed, cover their breath a short time with a hot stone quenched & wrapped up in a wet cloth at their feet; their teas should be spice bush or red pepper; during sickness make a drink of water by quenching a hot coal in it till the chill is off.

Take two doses of the first part of the composition in the course of twenty-four hours, and one of the second part, dividing the time of taking them, and sweat once a day for three days; and if the person have the fever and ague, sweat once a day till it leaves them, and keep up a moist sweat as steady as possible during the whole time and keep them warm in the chills and fever. Their diet should be light, such as chicken or squirril broth with a little of the meat and as little bread as possible; they can make use of rice or homony, but keep the stomach as empty as convenient, and especially for three days; and after that they can increase their diet gradually until well,

If the disease is less violent, you may leave out the first part of this process, and begin by giving a dose of the first part of the composition, and then sweat, and so follow the rule as is laid down above; and if it is found that the first part of this process is necessary, it can be applied at any other time.

In pleurisies and bold hives, and many other complaints, it is only necessary to pursue the rule until the patient recovers, which is not likely to be long. Let it be well remembered, that nature is the grand physician, and we are only to assist her in removing the obstructions that are found in her way, as far as is in our power, and that we should pay particular attention to her claims and try to supply her wants if possible.

In cases of less violence, these powders may be taken without a preparatory sweat, either in whole or separate parts, as the case may require.

JOSEPH BAKER

Witness—NATHL. MASSIE,
HENRY S. LEWIS.

I want the practioner to understand, that the second part of the composition which I have called No. 2, may be administered just as it is laid down in the patent; but for the purpose of keeping people from knowing what it is made out of, I have put a small quantity of the root of anjelica powdered among it. I am very certain that it makes it no worse, and it may make it better; but I have frequently changed this medicine to suit the nature of the complaint. I will here lay down some premises, so that other people may do so too, if they see proper. This medicine is intended to dry up ulcers that are in the inside, and drive out the humors to the outside of the body, and also to circulate the blood when necessary, or improve or diminish the several parts of it On this I will refer them to what I have already said or conjectured on improving or diminishing the component parts of the blood. When there is already a humor on the outside of the body, I have left out No. 2, and put in place of it No. 4, which is a drawing medicine and moderately purges; and as there are no certain means that No. 2 is to be made out of, only such as the judgment of the practitioner shall conceive neces-

sary, I want to lay down premises for them to form their judgment on. One thing we notice again, that we do not intend to force nature into terms, but to assist her; and keep it close in mind, that too many kinds of medicine, or too many kinds of diet, or teas, at a time, instead of curing, administers disorders. The stomach, not being able to digest it, though they are the very sort that would have answered the purpose, provided the stomach could have managed them; but now they become filth, and lay in the stomach. There is abundance of harm done even by good medicine, because when there is too much or too many sorts at a time, it overpowers the stomach. There are more people die that are killed with an over stock of medicine and different kinds of teas and of diet, which over stock the stomach, than die of nelect; for the stomach being weak, is not able to digest it, and it becomes filth, and we should not only be particular not to administer too many kinds of medicine at a time, but not to change our medicine, teas, and diet, oftener than we can help, and not humor the patient's appetite, for we may be sure that the claims of the appetite and the real claims of nature frequently differ, that the appetite of man and beasts have frequently claimed things that are poison, and have killed them: and the practice of drinking spirits to extreme, is to humor the claims of the appetite; and people through kindness frequently offer the sick different kinds of diet and teas, and do not know that they are injuring the sick and making their disorders worse. I hinted above that the stomach is the best judge of medicine, and that we are not to humor the appetite; that when any substance is thrown on the stomach, the sensitive powers of it will immediately accept of it or make war with the substance, and often create a convulsion in the whole system; and at other times throw the substance back by way of puke. The practitioner will see what is patented under this head as well as others, and ought to try to govern themselves in such a way as not to expose themselves to the penalty of the law. I will notice here that I sent samples to the patent office for several more medicines, to be patented for my system of practice; and although the patent law says that a man shall lay in his whole system, and keep nothing back, or to this amount, yet the present administration would not receive them, and stated that it was more than one invention. But as the bible tells us to be subject to rulers and them that are in authority, let us try to comply as near as the nature of the case will admit. I shall state how to form this medicine in some cases which may assist the practitioner to form it in others.

It will be kept in mind that the grand object is to cleanse the blood, and what we cleanse the blood with, generally cures all disease, for the blood is the life. Then, for the purpose that each may form a correct judgment, I will try to show the virtues and qualities

of the means that it is to be formed out of, as well as to make a few remarks on the virtues of the rest of the means of health: first of means that may be put in No. 2, the qualities of sulphur is to drive and dry, and in some degree to purge; because it enlivens the bowels and sets them in motion, and it is one among the best medicines in its proper place to dry up ulcers either in or outside of the body, and drive away the humors from the place; and it is generally a safe medicine when taken inwardly, and is a strong preventative against taking colds: but when applied outwardly, it drives diseases in, and rather operates against the common laws of nature, by driving the fluids back towards the stomach, and rather closing the pores of the body. I have frequently bought it powdered, because I had no convenient way of pulverizing the brimstone; but when I have powdered it, I have considered it the best, and would rather have it. It ought always to be administered in every inside disease, consumptions, coughs, gatherings, and ulcers in the inside.

The next is elder bark, or the leaves or bloom, dried and powdered, has almost the same qualities as sulphur, and is among nature's best productions if properly applied, and is before sulpur in some things.

The 3d is that of tobacco, that possesses near the same qualities, though almost too strong to be safe in using; and if given inwardly, must be by very small portions, which in using repeatedly, may be moderately increased; and if given at all, it should be with a great deal of caution and attention. It ought to be well powdered and mixed with other means in small portions.

I will here name the circumstance of one of my samples, that was sent to the patent office, and has not been yet patented—I call it No. 3, or an emetic, which is easier made and equally as good, if not better than the one that is patented; but to comply with the present administration, I have patented it as you see it—but that the practitioner may have the oportunity of knowing these things, I will give a copy of No. 3, not patented.

Take lobelia, gather the tops in the month of September, dry and powder the seeds and tops together, one ounce and a quarter; take tobacco dried and powdered, a quarter of an ounce; take sassafras bark, off the root, dried and powdered, a half an ounce. Mix these well together, then follow the rules of the patent. If it does not operate freely, or enough to answer the purpose, drink cold water freely.

If it is convenient to make two kinds of an emetic, it will be some advantage; when we administer to a person that does not use tobacco, let it be as is above described; but if to a person that uses it, we may increase the quantity of tobacco in the emetic, and the same allowances may be made if we put it in medicine.

But in following this rule, if the emetic either according to the

patent, or according to the medicine laid down above, if it should operate too severe, or you should wish to stop it at any time, you can either put the patient to bed, and cover them all over, and quench a hot stone, and wrap it up in a wet cloth and put it to the breath; and if that should not stop it, you can place several such stones round them till you get them into a sweat, which will generally stop it; or a quicker way is to place them over the steam, and take them through a regular sweat. I have been told that smart weed possesses the same qualities as that of sulphur, though I have not sufficiently tried it; but something possessing these qualities is essentially necessary in inside diseases to form a part of No. 2.

The next medicine is wild cherry bark. The qualities of this bark is to strengthen the tone of the stomach and improve the digestive powers by strengthening the nerves of the stomach; it is an astringent, and in some degree antiseptic, or has the power of preserving by possessing a tanning quality, and is one of the best medicines that can be given in a common dissentary, where it has not become a real flux, by using diet No. 5 with it; and where the flux is seated, there ought to be a portion of this along with sulphur and elder bark, or the leaves or bloom.

Black snake root has a driving power, but not durable, and possesses a sweating power, and in some degree strengthens the gall, but its effects are soon over.

Sassafras has the power of driving and improving the red part of the blood; it also circulates the blood, and sets it to foaming in general: so it is one of the means of removing stagnations of blood. But when the blood is in a high state, or state of fomentation, it ought to be left out; but when we find the blood in a low state, we should have a portion of sassafras powders in the medicine.

And as I sometimes make use of spiknard in No. 2, I will say something of its qualities. Spiknard was a medicine in the days when Christ was on earth. A woman poured a box of this ointment on his head, and it was considered very precious—John xii. and 3; though its virtues has been long tried. But little has been said in its favor among physicians of late years, but I shall unite with the apostles in saying it is very precious, and one of nature's best productions; it strengthens the nervous system in general, and is one of the best medicines for weak people that can be produced—it braces up the whole system of man, and is entirely innocent. I can say with a degree of confidence, that one pound of it is worth ten pounds of Samuel Thompson's nervous powders. It possesses a a small driving power, and ought to be administered to persons in a relaxed state.

The above is all the medicine that I make use of in No. 2, ex-

cept sugar, which I often mix with them in any other case except a foul stomach. It is apt to sour on a foul stomach, and make a foul stomach worse. But in all other cases sugar is a good medicine, as the human body requires a portion of it. One thing is worthy of notice, that is, we ought never to mix too many sorts together at a time; but two or three of such as have the proper qualities to answer the purpose are sufficient.

We may use these medicines to advantage while the patient is in a moist sweat, or sweating more or less every day. But if the patient does not sweat freely, we had better use No 2 but very little, lest it should overstock the stomach; but No. 1 has not the tendency to overstock the stomach, as it is a sweating medicine and will be apt to work itself off, that is the substance of it, through the pores of the body. So if we should conclude that the patient needed a double portion of it to assist in sweating, we may give it safely at any time.

I will here give a statement of the rest of the parts of what I have called No. 5, as I have named that of spiknard. Peruvian bark is well known, and its virtues middling well understood, that it is astringent or has a tanning quality; it strengthens the nerves of the stomach and improves the gall in some degree.

The quality of mountain sassaparilla is nearly the same of that of spiknard, and the quality of Solomon seal is near the same. You must take the roots of these, the production of beach, or what some call beach drops has some of the same qualities. I would remark, that it is not necessary to mix more than two of these at a time for nervous powders, or No. 5. I commonly mix three-fourths of spiknard and one-fourth of Peruvian bark, and give a tea spoon full for a dose two or three times a day.

The qualities of the parts of No. 1. Seneca snake root is one of nature's best productions, and its value is not known. It possesses a real sweating quality, which throws off abundance of filth with the sweat, both from the matter of the blood, as well as destroys the humor of the red part and renders the blood more calm and pure, for it increases the motion of the heart, and its effects are more durable than the rest.

Liverwort is another of nature's best productions; it strengthens the motion of the heart, and in that way drives disorders through the pores of the body. This may be evidently seen: give a person three or four doses of it alone, which may be done by giving them fifteen minutes apart, and put them to bed; and when they get to sleep, say three or four hours afterwards, then feel of their breast and pulse, and you will find that the motion of the heart is very much improved, and the sweat will flow freely, and especially if

they are a little warmer covered than common; let another person lay covered just as warm as them, and compare them together, which will decide the point. The motion of the heart drives the surplus matter of the blood against the skin, and on this account the person will feel cold next to the skin, if they are awake, when it is in full operation; and in this way it assists in throwing off the surplus matter of the blood.

Robbins' plantain possesses a sweating power as well as somewhat driving. These are the parts of No. 1, but we might call up any other thing that possesses the same qualities, whether it be domestic or foreign. Baitman's drops possesses the powers of sweating, but its effects are not durable, though it might be a good means to help to start it. Black snake root has the same quality, but the effect is soon over.

Lobelia possesses the power of puking and sweating; it irritates the coats of the stomach in such a way that it sets the heart to motioning, and this produces a sweat in a general point of view, and at the same time the stomach cannot bear the operation and throws it off.

The sassafras or tobacco mixed with the lobelia for an emetic, is to set it in operation, wherein one-third of the quantity will answer the purpose, which renders the puke entirely safe, as it is not safe the way the Thompsonians use it, neither doth it throw off the bile as well that way as the way I make use of it; the weak lie is another assistance.

Burdock is a drawing, purging medicine, and strengthens the tone of the stomach; it enlivens the bowels by taking off the dead matter and adds sensibility, and thus causes the bowels to motion.

Perlash has the tendency to destroy the mucus or matter that is generally in the inside of the stomach and bowels, as well as to destroy the small worms that sometimes are in the stomach.

Ginseng is a purging medicine, and rather improves the blood, though it sets it to foaming like sassafras.

Dog wood bark is a little purgative and strengthens the gall.

Salts, the effect of this medicine, it purges, but leaves the person costive.

Opium and laudanum, the effect of these are, they destroy the sensitive powers of the body in a degree, benumb the part that they are applied to and lower the circulation of the blood, so causes sleep.

Opium is made of the juice of poppies, and laudanum is made by dissolving opium in rectified spirits.

Black ointment, or a kind of wet fire, to burn out cancers and the like: take two pounds of honey, verdigris, dyer's gall, and green

copperas each four ounces—make all into powder; then put them into an earthen pot, and set it on the fire, keeping it stirring; but as soon as it begins to boil, take it off, and let it cool, otherwise it will become red, which will not be so good.

Having now gone through some of the outlines of this system, for the sake of brevity, and to avoid repetition, I shall lay down the different rules of diet and also of medicine, under the title of Nos. 1, 2, 3, and 4, &c. I shall begin with diet No. 1, in this I will scite the reader to the patent; and the first one that is necessary to be laid down is No. 2.

Diet No. 2—use rice or homony, and drink plentifully of broths, such as chicken or squirril, mutton or beef, let them be rather fresher than common, or drink tea or coffee; and if you should use any bread, it should be very little, and a small qantity of fresh meat. Use such diet as the above till you about half satisfy the appetite.

No. 3—use the same kind of diet as is laid down in No. 2, till you nearly satisfy the appetite, but not quite, and never lay down in less than two hours after you eat.

Diet No. 4—live on a light watery diet and mostly of vegetables, and always quit before you are quite satisfied; and use considerable sweetening in your diet, and always eat near two hours before you go to bed.

Diet No. 5—use mostly wheat bread and sweet milk, but not to eat too hearty.

Diet No. 6—rules to go by in an ordinary state of health. Never eat too many kinds of diet at a time, nor change your custom of diet too suddenly, nor never lie down under an hour after you eat, nor never crowd the stomach too full, nor be extravagant in your changes of conduct or clothing, and keep an eye to the discharges from the pores of your body, nor drink spirits to excess, and keep your lusts and temper under a proper government. These will be means of health and propriety.

Medicine No. 1, as was stated in the patent, for a substitute take either two out of the three that is named, and make the same amount of powders, and give a tea spoonful for a dose, just as though they were all together.

No. 1, a regular course of medicine is laid down in the patent: this may suffice on that point for three days; and the patent states of increasing their diet gradually till well. They can use diet Nos. 2, 3 and 4, as their diseases and strength will admit; and if the disease is removed, use two doses a day of No. 5.

No. 2—in diseases less violent you may take a course of medicine No. 2, that is to follow the same rules as that of a regular course of medicine, only begin with diet No. 2.

No. 3—a third way of cleansing the blood when diseases are less violent, is to give three doses a day of medicine No. 4, and throw the person into a moist sweat once a day by exercise, being cloathed warm or any other way, and keep the same rules of diet as that laid down in medicine No. 2. This should be attended to in diseases on the outside of the body.

If any person should take cold while passing through either of these courses, or if you discover any sudden change for the worse, give a small dose of No. 2, and sweat immediately, which will drive a cold out; and if it is a cholic, it will help, though a drink of weak lie, as has been described, will sometimes help.

And after the three first days, in which patients are directed to be kept in a steady moist sweat, in a regular course of medicine, they ought to be thrown into a sweat once a day by some means to keep the pores open that often at least during the whole time of their recovery to perfect health.

In following either of these rules, if the patient is hard to get into a way of sweating freely, you can give several doses of No. 1, fifteen minutes apart, or give some black snake root tea, or even Bateman's drops—none of them will do injury, as they are all sweating medicines, and no sweating medicine will create filth on the stomach; and then follow the rule as laid down in a course of medicine.

And if nature demands a puke or purge during the time that the person is going through either of these courses, it can be administered with safety; and afterwards continue the course as before, or make use of an injection at any time, which is more advisable than to purge.

The best means made use of for an injection, is the solution of elder bark in weak lie, with a small quantity of grease.

The way to take No. 4—Put the powders in warm water or warm tea a few minutes before they are taken, and wash them down with tea or broth.

By drinking plentifully of fresh broth and some weak lie, along with No. 4, generally purges moderately; and if any other means must be made use of as a purge, I would advise castor oil to be administered. The above purges are entirely safe to eat or drink any thing on them.

No. 4—Take burdock root dried and powdered, one ounce; take the inside bark of dogwood, dried and powdered, a half ounce; take perlash, powdered, a half ounce; mix them well together: for a dose, take a rounding teaspoon full. This medicine has been given for worms to a great advantage, especially for the small stomach worms.

No. 6—Take a pint of linseed oil, and an ounce of sweet oil, and boil them in a kettle on coals for nearly four hours, as warm as you can conveniently, and take a half ounce of borax, four ounces of red lead, and one ounce and a half of sugar of lead, and pound them in a mortar, or grind them till they are well powdered, and take your kettle off the fire, and stir the oil while you thicken these into it, and continue to stir it till it gets blood warm; then try it by taking out a little, and let it get cold; and if it is not thick enough for plaister, you can set it on the coals a few minutes, and continue to stir it till it gets blood warm again, and then stir an ounce of the spirits of turpentine in it, or if it was thick enough the first time, it need not be heated again. These plaisters need to be harder in the summer than in the winter; and it can be spread on writing paper or on the grain side of thin leather, and applied to the place and it will stick. I have made use of this plaister for every kind of wounds, bruises, sores, burns, white swellings, rheumatisms, ulcers, sore breast, tooth ache, and even when there was wounds in the inside; it has been applied to the outside, and it has gained almost universal credit, and answers in place of almost every other kind of salve or plaster.

The reader will observe that roots or barks ought to be gathered in the fall or spring, when the sap is not up, for they are stronger at these seasons of the year, that is as far as you can conveniently; but there are some, like that of Seneca snake root, that cannot be found only when it is in bloom.

It may be that the reader may know all the roots, herbs, and barks by their names; but lest they should be at a loss as to know Robbin's plantain, I will here describe it: it is a wild plant, the leaves are not as smooth as other plantain, though it resembles them by spreading low on the ground; but it has one singular whiter root that frequently intersects another plant of the same species: this root is white and larger than the rest, while the rest are small and near the color and appearance of other plantain roots.

The next thing I shall attend to, is to lay down some of the causes of diseases, their symptoms and cure, in a short way, of a few complaints, that some general knowledge may be conveyed to the reader of those complaints that I shall not name.

The first complaint I shall name is the ague. This disease comes from filth in the blood, which thickens it till at length it shuts the pores of the body; and the blood being mixed with a quantity of water and matter, becomes stagnated, and nature is always ready to lend her hand to assist in every complaint; she makes her periodical effort to open this discharge of the body, and to force a revolution in the blood, as the organization of the human body is such

that there is a quantity of water thrown into the blood continually, and part of it is absorbed in the flesh as it passes out from the stomach by the arteries, and this water ought to be discharged; and the blood also itself scatters in the flesh as it passes out, and if the water is not discharged from it, it stagnates in the extreme parts of the body. When this stagnation commences, then the patient begins to feel the chill, for the blood, which is the life, losses its natural warmth, being mixed with a quantity of water, and being already over burthened with matter, she fails to keep up her natural warmth. Now nature wages war with the complaint, and sets the body to trembling, or, if necessary, to shaking, to remove this stagnation and force a revolution in the blood, and she kindles a fire in the inside, or in other words a fever, for the purpose of warming the blood; and this warmth is increased till it gets high enough to force a revolution of the blood through all the small organs of the body; whenever this is effected there is no more use for a fever and it goes off immediately, and nature has gained her point. The pores of the body is now opened and a free discharge is a common consequence, but if there is not a free discharge at this time you may expect the contrast to be continued till either nature or the disease shall overcome; if nature overcomes, the patient will be relieved measurably for a short time till the blood stagnates again; but if the disease overcomes, death is the consequence in a short time, though this contrast may continue for days; when ever this contrast happens, it may be called a typhus fever or cold plague; whenever nature gains her point periodically, it may be called an ague. I will let these few remarks suffice to show the cause of both typhus fever and ague, at this time.

The symptoms of the ague is as follows: The person feels heavy, sometimes for several days, and tired as though they were pressed down; this is the weight of matter in the blood, till the disease makes its attack, then they will have a shake or a chill and a fever follows and some times a head ache.

For a cure you may follow the rules of the patent or commence the diet No. 2. by following the diet No, 1, is a little the surest to cure, but reduces the patient lower, and is not so apt to be complied with, but let them follow either one, they are not to exceed the diet No. 2 till they are clear of the complaint and then fall on diet No. 3 for some time, and so gradually increase and allow them no green fruit in neither fever nor ague until they are perfectly well; clothe warm and lie warm of nights.

It is worthy of notice that in curing the ague or any species of fevers, the patients cannot overdo themselves so as to bring the disease back again; but the more they stir themselves and circulate the

blood, being dressed warm, the better, as lying about and over eating are the worst things to bring it back of any other.

As the typhus fever or cold plague is connected with the ague, it has been a disorder that has baffled the skill of a great number of physicians. I will make a few further remarks on the subject by way of explanation.

The blood, which is the life, in this disease as well as many others, has too great a quantity of matter in it. Here I will refer the reader to what I have said on the component parts of the blood. The extra quantity of matter is what chokes the pores and stops this discharge, and is hard to circulate through the small vents of the body out of the arteries into the veins. Nature, to force this circulation, creates this fire within the body, and calls for water to thin this densed substance; but the appetite says she calls for cold water, but the fire she has raised within teaches that it should be warm, or as hot as it could be drank, so as to assist her in warming the body;* and as soon as nature has accomplished her design in forcing this circulation, she then dispenses with all her surplus water. But the question is, how shall we assist nature in forming this revolution and dispensing with her surplus matter and water? I answer, by giving No. 1, which increases the force of the heart for several hours after it is taken, and raising a steam, which doth the same, as well as to moisten the skin; and in this way assists in opening the pores of the body, that a free discharge may be obtained, and also lower the fountain, that is the stomach, of solid food, so that it shall not throw out as much matter from it as usual. An hour or so before the time of day that this revolution must be performed, or in other words, that the ague or chill comes on, give a dose of No. 1, and then take the patient through a sweat, and keep the sweat up till the time of day is passed for the ague or chill to come on. This both discharges the matter, in a degree, and warms the blood to supply the claims of nature, as the blood in its thick state cannot pass this revolution till it is warmed; and this discharge ought to be kept up in some degree till the disease abates; and during the time the patient might drink freely of weak lie, made as is described in taking of No. 3, or an emetic. If the patient should feel very weak, and the chill and fever are gone, so as to have no symptoms of them, you can partly stop giving the medicine above named, and give two doses a

* *This water may be impregnated with tea, so as to remove the sickishness of the taste; for the real claims of nature and the appetite frequently differ, for there is many a thing that is palatable that is poison, and nature wars with it as soon as it lights on the stomach.*

day of No. 5. And in any disease, if the patient becomes so costive that there is no passage in three or four days, you can give an injection, or administer No. 4, a dose every hour, with chicken or squirril broth, till it operates, or till you give seven or eight doses, or give castor oil. But it should be remembered, that people living on low diet and sweating, will not have frequent discharges by stool; and we need not be uneasy if they have one discharge every three or four days. I will remark here that out of near seven hundred cases that I have attended for the fevers of different kinds, I do not recollect of ever giving more than three or four purges. The above remarks may be applied either to the typhus fever or ague, or any complaint that is attended with a chill or shake.

Bold hives, or what some call the croop, is the second disease we will make mention of here.

The cause of this disease is too large a quantity of humor and matter in the blood; and in connection with these, the person takes cold in the department of the heart and lights, which swells the lights often to an inordinate size, so that they fill the department; and the pores being shut, it forms a stagnation of blood all over the system, and the lights and heart not having room to work, is at length forced to stop, and the person looks strangled.

The symptoms of this disease are as follows: The countenance of the person looks flush, and as they become bad, they look more purple, and their voice is shrill and sharp, with hard work to breath, like a person having the phthisic in a wheezing posture. For a cure, give a dose or two of No. 1, mixed with one third sulphur; or if they cannot swallow the powders, make tea of them, and either sweat them regularly, or bathe their feet and legs in warm water, and give warm teas and cover them over till you get them in a sweat, and keep up the sweat till they are well; keep the blood circulating by rubbing and bathing during the time, which is not likely to be long, and the child should be kept on light diet for a while, to keep them from having another attack.

Costiveness is our next complaint. This generally comes on old people, and more apt on women than on men; but sometimes on all ages and classes of people. There are several causes that it proceeds from: one is, for want of a stronger motion in the bowels; another is inward fevers, that dries the water, or forces it out of the bowels through the small vents into the body, as there are small vents through which the water soaks, not only in the stomach, but bowels. Sometimes these vents are too liberal, and drain the water off too close, and leave the morbid substance too dry to be comfortable. When this is the case, when the patient can bear it, and not be obliged to fly to some remedy, it is generally indicative of a strong constitution, and one which is

For a cure, the best rule is to change your diet to a fresh, watery diet, and use vegetables as much as is convenient. This rule is preferable to that of purging, for purging frequently makes it worse, except that of castor oil, which generally has been for the better, because it renders the bowels more pliable and rather strengthens the motions in them. Corn bread is preferable to that of wheat in this disease; sour milk is preferable to that of sweet—salt meat should be avoided.

Cholic is our next disease. There are various species of this disease: one species comes from what I have last mentioned—that is costiveness; that is being bound in what is called the rectum, or in the big gut at the lower part of the body. In attacks of this kind it would be best to make use of an injection. Sometimes these attacks are very severe and even dangerous. In this species of cholic the pain begins near that part of the body where the disease is; and the strongest sense of pain is still felt there, though it sometimes flashes up to the stomach, and even all over the body.

There are various other species of cholic. I shall lay down one general cause, which I suppose to be a weakness of the nervous system. I will here give a short narrative of an experiment of this kind: I was travelling about nine years since in the western country, through a wilderness part, where there were but few inhabitants, and the diet of the people was very indifferent of course—corn bread of the coarsest kind, and some bacon and milk. And as milk has not agreed with my stomach for many years, I took but little of that; and the bacon is a diet that, at home, I should not eat, on an average, two pounds a month; and for many years I have been disgusted with corn bread, and this was of the coarsest texture. So, after several days travelling, and living this way, receiving but very little nourishment, I became very weak and also very cholicky; and one day, having near thirty miles from one house to another, by way of a narrow, blind path, and feeling symptoms of the cholic when I started, but not dangerous; and as I travelled, the cholic increased till I had travelled the most of the distance, and at length I concluded that my journey on earth was about to be at an end; and among the concerns that occupied my attention, was that I should die in the wilderness, and my family and connections would never hear what had become of me. I had flattered myself that I would be able to hold on the horse's back till he would take me through; but at length all hopes began to fail: I concluded that I would get down and write a small letter, containing my name and place of residence, and cause of my death, that if any body should pass that way and find the corpse or the cloaths, they might get in possession of the letter, and would be apt to write to my frinds, informing them what had become of me. And as I rode up to a log, and with

difficulty lighted on it, and I saw the top of a spiknard immediately by the log, and I bethought myself that I would chew some of the root, and accordingly I pulled it up and commenced chewing and swallowing the juice, while I was consulting how to form my letter. And I had but just swallowed some of the juice, till I thought I found some relief. This encouraged me to continue, till in the course of two hours I was able to pursue my journey; and feeling extremely weak before the cholic attacked me, and finding that the spiknard had strengthened me, this gave me an idea that the cholic came from weakness of the nerves. But there has been, since that time, a great number of circumstances happened under my notice, that has confirmed me in the opinion that the cholic comes from weakness of the nerves. I will mention some circumstances that coincides with what I have said. You will find that gross, strong persons are not often attacked; but it is the people of a weak constitution that are attacked in a general point of view: and again, when people are in a low state of health, they are the most apt to be attacked. I once thought that the cholic was confined to the stomach and bowels; but I have found that the whole hollow of the body is subject to it, and it is understood to be a collection of wind that causes it.

The symptoms are so various, that I am at a loss to describe them. I might only hint at it. Sometimes when it makes an attack in the bowels, they swell perceivably, and that is the part that pains are felt. A kind of weak feeling follows almost every species of cholic, and sometimes flashes of sickness are sensibly felt. When it attacks a person in the lower part of the stomach, they can frequently feel the stomach swell and a pain in it, with the same weakness mentioned above, and oftener the sick flashes that were mentioned before; and at other times a kind of burning weakness in the stomach, and sometimes goes off by increasing the motion of the heart, which throws the person in a moist sweat, and at other times it attacks the breast, and sometimes crowds the heart and lights till it is difficult to breath, and sometimes we can discover the breast swell, and sometimes a pain is one side or the other, either of the breast or bowels, and not settled long at a time, but rather moving from one part to another. But we may take it for granted, that any pain in the hollow of the body that is not settled there, so that we feel it, or feel some of it at all times, in that place, is the cholic.

A person passing through a regular course of medicine, while the bowels are empty, is very apt to be attacked. Here I wish to warn the practitioner to be on their guard on this point; their patients may be taken strangely sick all of a sudden; if they have not taken cold, you may suppose that it is the cholic, and they are more apt when

they are very low: you should give them suitable directions, so that they can break it off when they are attacked.

I shall now name a few things that I suppose are a sufficient remedy for this disease; one that is most sure, is to take a dose of No. 5, and then go through a regular sweat; but taking several doses of No. 5, with sweating, has helped a number; and drinking of lie, made as has been mentioned, is sometimes a remedy. Another remedy that has been used to advantage, is to take several doses of mustard seed, fifteen minutes apart, that is a heaping tea spoonful at a time. Another remedy is to give an emetic, that is when the cholic is in the stomach. Another remedy is to quench bunches of hot ashes and place them round the person as near the pain as is convenient; and if it is in the breast, quench a hot stone and cover the breath, and place it to the breath a foot or so from the mouth, which will be very apt to relieve the patient.

The consumption, what it is, and what causes it. Any disease that has a tendency to consume the body or flesh away gradually, may be called a consumption. The most common opinion is that the liver or lights are affected to constitute a consumption; but I am far from this opinion. I have attended on about ninety cases for this disease, and I find it comes from different causes, and is lodged in different parts of the body; yet I have not made it a custom to call diseases a consumption that were not lodged in the hollow of the body. I knew one woman that her disease was below the short ribs in one side, and she was probably eight years consuming away, and became a mere skeleton before she died; and I doctored one man who broke something below his short ribs near his loins, and was seventeen years sinking away, and several doctors attended him, and all agreed he had the consumption. In short, I have known people that I supposed had ulcers in different parts of the hollow of the body, and it was considered both by the doctors and people in general to be a consumption, that is while the patient consumed away. And as I have cured a number of this complaint, and consider it easier to cure those whose liver or lungs are affected, or if even the effect is in the light or heart department, than to cure those who have ulcers round the hollow of the body; because the former are more apt to discharge the matter by the way of the mouth than the others; and if the matter is not discharged, it becomes a hard lump, and the patient cannot be considered well while they carry in them this lump of useless matter. And while I lay down the cause of these complaints, I shall embrace under this head every general cause that consumes the body, such as sores or ulcers, in or out of the body.

First, it is a fact that sores are supported from humor in the blood. This humor frequently is mixed through all the blood in the body in

a degree; but they often flow together and settle in particular limbs or parts of the body together, though they are more apt to settle near the discharges of the body than any other place. And as there is a steady discharge through the pores of a healthy person, the humor generally settles on the surface of the body of these persons, and there are some people that are affected in the rectum, because the discharge by stool is this way; and though the urinary passage is the purest water that is discharged from the human body, yet there are some affected near the kidneys or neck of the bladder; for this reason they settle in healthy persons near the skin, but it depends very much on the force of the heart. When the heart beats strong in persons, there is but little danger of their taking the consumption; because the humor is driven to the extreme parts of the body, and a free discharge of perspiration is kept up in a general point of view. You may form an idea in general of those families where the consumption becomes hereditary: they are generally of a low pulse, as the pulse depends some on the motion of the heart, you may from this feel the force of the heart; but this rule is not always to be depended on, for sometimes the blood possesses too much matter, which choaks the pores and stagnates in a general point of view. This destroys the motion of the heart very much, & diseases strikes in on the inside, and forms new places of discharges, sometimes by the way of the mouth, and other times it discharges in the hollow of the body.

We are to pay some particular attention to the age of these ulcers or sores, whether they be inside of the body or out; for where these humors collect and fester, they often break and begin to discharge their matter, and this has a tendency to draw more humors to the same place; and if this continues, at length it becomes a place of discharge, and nature discovering this evacuation, prepares some new channels or organs for this matter to flow along. That this matter does not flow along the natural course of the blood vessels by opening the wounds, it can be seen often either in man or beast; and by paying attention to a person that has an ulcer on the arm or leg, you can discover this discharge is not perpetual, but a little like the discharge by stool or urine, that flows periodically or by spells; and at the time that this watery matter is forcing its way towards the place of discharge, the person will complain of pain, sometimes very sharp. These things show that it does not flow along a natural organ, but an unnatural one. If these organs are new, and nature has not got a long habit of preparing substance for them, it is quite easy to break it up by lowering the fountain, that is the stomach, and by a course of medicine, which will discharge an uncommon quantity of water and matter through the pores. And as the natural organs make a stronger claim on the fluids than the unnatural ones do, by this means the unnatural organs will be left unsupplied,

ond in a short time will close up. But an old complaint differs from this; for although you stop this substance from flowing for a short time by robbing the fountain, and throwing off a quantity of substance through the pores, yet when the fountain gets a supply, and the pores close up measurably, nature has got such a habit of preparing a supply for these new vents or discharges, and they have been so long in use, that their claims for substance are nearly as strong as a natural organ; and unless we baffle their claims a long time, it will not be destroyed: and the patient needs patience and a close adherence to the rules to baffle these complaints. There is one more cause that makes this complaint hereditary, that is to be alarmed or frightened. There are a number of people, that when they get frightened or terrified, the blood in a degree leaves the extreme parts of the body and flows more forcibly round the heart; and whereever the blood flows the strongest, there the humor is the more apt to affect the system—for the humor flows with the blood, and there has been a number of families in the bounds of my knowledge who have never been affected with the consumption to their knowledge, till at length one has been attacked and died. This has had a small tendency to affrighten the rest. Then we find that another is attacked, and also dies: by this time the rest begin to take the alarm more generally, and conclude that it is hereditary. After this, if any one of the family are taken, they are immediately alarmed, and begin to think that it is sure death; and we find that it often turns out so, until it sweeps the whole family, and even sometimes whole connections have died with the consumption. For this reason I would advise the physicians to keep their patients as comfortable as is convenient, and encourage them as much as the nature of the case will admit, and let attendants sing and cheer the mind, and be in a lively posture. These things will assist in throwing the blood out from the heart, so as to drive the humor to the extreme parts of the body.

But there are other causes of this disease, such as the measles struck in by cold, which shuts the pores and settles on the inside; and the pleurisy has brought on the consumption, but it is in the light department, and there are various other causes such as wounds or breaking something in the inside, &c.

The symptoms of this complaint are so various, they are like a family of them; but I will hint at it as well as I can. There is apt to be a pain or soreness at whatever part of the body the disease is seated, and if this matter can have access to the mouth, there will be a cough and a spitting of matter, or blood and matter. If this disease is seated any where in the heart department, we are apt to see some foam mixed with the spittle, and the pain or soreness will be higher up, and most apt to be seated in the pleura, that is the flesh that is

in the inside of the ribs, near the shoulder blade; and if this is the case, the patient will feel a pain strike through to the shoulder blade; and if it is in this department, the patient will be apt to be phthisicky, and more apt when they take cold, they feel a difficulty in breathing in some degree, and they are more apt to spit blood. In this species the pulse rather jerks, and are quick, as it comes from a pleurisy in the first place or bad cold. And another species of this disease is where it settles on the lungs or liver. The symptoms of this species is a pain or soreness at the pit of the stomach, and cough up more or less matter; they are apt to feel weak spells and a low pulse—these are most apt to swell in their limbs in the last stage of the disease. Another species of this disease is when the inflammation is low down in the bowels, the person is apt to have a purging, and their pains are low down, and sometimes they are cholicky and not much if any cough, and weak feelings. Chills and fevers are a common consequence towards the last stages of consumptions of almost every species; these are the most common symptoms.

For a cure, avoid every species of physic as much as possible, as they have a tendency to draw diseases in on the inside and improve the inflammation by setting the bowels to motioning faster, and the more a humor is rubbed the worse it is.

No. 2 may be made as is patented, or any other dry and driving medicine; if the patient is very weak, you may put spiknard root powders among them. Take them through a regular course of medicine, and if they are not too weak to bear it, let their diet be as it is patented; but if too weak, give diet No. 2, for at least two weeks, and then fall on No. 3 for a while; and if the complaint is old and hard to baffle, you can repeat your regular courses as their strength will admit and as the disorder needs it, and watch against cholic as has been stated; and after they have gone through their steam sweats, let them be got into a sweat once a day by some means till they are well, and dress warm and lay warm of nights, and stir about in the day time to circulate the blood as much as possible.

Dissentary, this disease may be divided into two complaints, or rather come from two causes. I have already hinted in this work that physic draws diseases in on the bowels. There are different causes that will set a person to purging if the body is full of humor; and any thing that should set the person to purging at this time, has a tendency to draw the humor in on the bowels—sometimes too free a use of fresh meat has this tendency; at other times a sudden cold, and sometimes a large draught of cold water when the person is warm. But as the two species of flux amounts to but one thing in the end, I will here detail the other cause, which is the most dangerous, it comes in hot weather: persons frequently by exercising them-

selves too much in hot weather, bring on them what is called the heat; so, if a person gets hot enough to inflame the blood this way, and at this time take cold so as to shut the pores, this will frequently drive this inflammation or heat in on the inside of the bowels, that would otherwise break out on the surface of the skin. The night air has this tendency, coming on us when we are very warm or lying too cold of a night after being very warm in the day, or a cold damp shower of rain at this time. These with other things has this tendency; humors are alike, whether they are outside of the body or in, the more we rub them, the more they become inflamed; and a purge at this time sets the bowels in motion, this augments the humor, and the inflammation is worse; so, the less purging that a person can do with is the better during the complaint.

The most common symptoms are a purging, and a kind of matter comes with the stool; and when the ulcers get more rough, they commence bleeding, so that the blood and matter is on the stool—there are pains in the bowels and in some cases a heat.

For a cure, your No. 2 should be made of dry and driving medicines, and follow a common course, except in an operation of steam, provided you can get your patient to sweating freely without it, and this sweat must continue day and night till well; but if you cannot get them in a way of sweating without it, make use of the steam repeatedly till they get in this way—the diet might be No. 2. The No. 2 as medicine that I have made use of in general, is equal parts of sulphur, elder bark, and wild cherry bark, and giving two or three doses of it a day. When persons have a dysentary, and there is no great quantity of blood or matter comes from them, it will be found to be an advantage to use diet No. 5.

Apoplexy fit—This disease comes from hard drink in a general point of view, but sometimes from living too much on strong diet, very fat and salt, which sets the blood in a state of fomentation and fills it with humor, which throws it up to the head with such rapidity as to overcome the person.

A cure. The patient may be first relieved by bleeding; it should be done as quick as possible, and afterwards give three or four doses a day of No. 1, without any other medicine, and regulate their diet to No. 2, for two or three weeks, and then give diet No. 3. During the first part of the time try to keep them in a moist sweat, without an operation of steam bath, their feet often in warm water, and afterwards get them in a moist sweat once a day.

Fevers. There are some doctors that are either blind, or wish to blind others, by placing fifteen or twenty names to fevers, such as the fever and ague, the typhus fever, pluerisy fevers, fomentary fevers, bilious fevers, yellow fever, nervous fever, intermittent fever, slow fevers, rheumatic fevers, &c.

I shall consider them all under three or four heads. But I find fault with the title as a complaint, for I believe that it is the way that nature resists complaints, that is by a fever. This is one of the best arguments made use of by Dr. Samuel Thompson. If he was the first person that found out that a fever was no complaint, he deserves credit; but I have been in a doubt whether he was the first or not. I think not less than fifteen or sixteen years ago my father mentioned to me that some doctor had made this discovery, though I do not remember the name, whether it was Thompson or not; but as it was many years before the date of his patent, it does not look likely that it was him, though I recollect of his stating that this doctor cured with domestic medicines, that were not poison. I then fell in with this opinion, and have remained so since. We may discover that wounds, bruises, sores, burns, and the like, throw people into a fever; but cure the complaint and the fever ceases.

The first complaint of this kind I shall mention, is the fomentary fever. The cause of this complaint is generally a foul stomach; it is most apt to happen to people of a full habit, whose blood is humorish. This filth creates a heat in the stomach, and this heat spreads all over the person; this shuts the pores of the body, and the fluids that should be discharged this way, are confined within the body; and sometimes these fluids pass off either by stool or urine. Now the doctors instead of opening the pores, frequently increase the discharge by stool; this draws the substance back towards the stomach, and of course the filth with it, which is apt to make the patient very sick; for nature, instead of throwing her substance toward the skin, where it ought to be discharged, it is now forced back on the stomach, and this sometimes is repeated; and if this does not answer, sometimes they administer a poisonous emetic, which not only throws this substance back contrary to nature, but is apt to leave some of that poison in the body. But the question is, what shall be done in this case? I answer, what does nature demand? Is she tired of her load on the stomach? If she is, she will make motions to throw it back by the mouth. If this is the case, you can assist her by administering No. 3, and clearing the stomach this way, and continue a regular course of medicine. Let the diet be No. 1, for three days, and so gradually rise till they get well, which is not apt to be long. If the patient does not make motions to puke, you can begin by giving a dose of No. 1, and then sweat, and so follow the rule of the patent.

The symptoms of the above complaint are as follows: the patient is thrown into a high fever, and has a high pulse, often a pain in the head, and a sick stomach, and often has a load on the stomach, sometimes casting up a sourness in the mouth.

The next fever I will call a stagnated complaint, because it comes

from a stagnation of blood. I expect to cope under this head what is called the cold plague or typhus fever, stagnated fits, nervous fever, the third day ague, the slow fevers, bold hives, the spotted fever, bilious fever, common ague, rheumatisms, &c.

I will refer my reader to my general remarks on stagnations of blood as the cause of these complaints in a greater or less degree, and the reason why it throws people into so many kinds of fevers with other complaints, is in proportion to the stagnation, and where it lodges in the body. When it lodges near the nerves, it becomes nervous; when it stagnates generally, it become typhus or a cold plague; when it settles near the skin, it becomes dropsycal; when it does not settle at all, but occasionally thrown off by fever, it becomes aparoxism or an ague; when it lodges in the limbs, it becomes rheumatic. I have stated in my general remarks that there is too much matter in the blood, that causes this stagnation of blood. In a stagnation of blood, it is entirely too dangerous to bleed the person; and when we do try to bleed, the lancets frequently strike on the matter part of the blood, and if so, the blood does not run free, and often when it does run, it chokes in the vent with the same matter.

The symptoms of those complaints which come from one general cause, are so various, that it would take too much room to describe them completely, but I will hint at the substance.

The first is the common typhus fever. The patient is frequently attacked with a chill, and some have several chills a day, and sometimes one part is warm and another cold at the same time; though there are some who never have a chill perceptible, they are apt to feel a swimming in the head or head-ache. Sometimes before they are attacked, and sometimes afterwards, even during sickness, another symptom still more common, is a heavy feeling all over, and sometimes pains in the limbs and sore all over; sometimes fevers by spells—this is worse than if they had a steady fever. If the blood stagnates very bad, their feet will get cold; sometimes the part they lie on becomes numb, and when it works on still worse, the cold still pursues up the legs, and as it passes above the knees, it commences on the ends of the fingers; and as it improves, it draws more on to the body, on the arms and legs, and soon it invades the whole system; and while it is stagnating, sometimes they get spotted in the face, that is, one spot of the face will be red and another pale, and sometimes there will be purple spots. This is what some would call a spotted fever, but while the patient complains very much, there is not so much danger; but as the blood stagnates worse, they complain less till at length they appear easy. Now is the height of danger, though they may lie sometimes for days in this way, and the first complaint of any notice is likely to be the agonies of death. But when

this stagnation strikes the nerves, there is a jerking or twitching in the flesh, and sometimes even the cramp in the limbs or body. There are other symptoms that some people feel in the early part of this disease, such as a pain in the breast, that strikes through between the shoulders, and sometimes stiffens the back of the neck and works up to the back of the head.

When this disease comes on slow, sometimes for months, and I have known some coming on for several years, it is still nearly the same symptoms, which some would call a slow fever; but sometimes nature resists the complaint, and warms part or all of the body—if so, they feel hot flashes and sometimes there is a numb feeling either in part or all over the body, though this complaint most commonly comes on speedy, and takes a turn in nine days.

A cure—When this disease varies to the head, you must leave sassafras out of No. 2, and put in place of it black snake root; but if it does not cause a head ache, just follow the patent, and keep up a sweat day and night as steady as possible till the disease very much abates.

Yellow fever.—I have doctored but one case of this complaint, but I conclude that I know the cause of the yellow fever. I suppose as it generally prevails most in warm climates, that it is the gall of the stomach with the filth of the blood in a state of discharge gets choaked in the pores either by cold or too great a quantity of matter in the blood, or some other cause; and as the natural color of this substance is yellow, it turns the person's skin the same color. I have known a number of persons whose skin was turned yellow by the jaundice, and some by fevers, and I have opened a free discharge from the pores of the skin and giving them diet No. 1, and the color has been altered in three days. So I suppose that a regular course of medicine would cure this complaint, and we might follow the directions of the patent.

Scarlet fever comes from humor in the blood, and nature aims to throw it off by the glands of the throat, and the worst danger is while the throat is swelled, before the humor comes out so as to be seen.

The symptoms of this complaint are a sore throat, and at length they break out with a red humor like scarlet, and it goes off frequently by the patient pealing all over or in part.

For a cure, make use of No. 2, of sulphur and elder bark, and take a course of medicine agreeable to the patent.

Convulsion fits—If the patient is dangerous, bleed in the foot, and after frequently bathing the feet in warm water, take a regular course of medicine by leaving out No. 2, and give three doses a day of No. 1.

Stagnated fits.—The cause of this disease I will scite the reader to my remarks on a stagnation of blood; and the reason that it operates differently on these people, is the formation of the head, the blood has not the same room to circulate round the brains as it has in others when there is an over stock of blood in the head, as is the case in such stagnated complaints; because it stagnates in the feet first, and the heart throws it up to the head, because it cannot flow freely to the feet. Although the fit itself baffles the stagnation in part, for nature takes this way to force a circulation of blood, but as there is too greet a quantity of surplus matter in the blood, it stagnates again, and so continues as long as the blood is in this state.

The symptoms of this complaint is in a great degree like all other stagnations of blood. At the time when the blood stagnates in the feet, and the feet gets cold, then the heart throws blood up to the head with too great a rapidity, and thus overcomes the brain, and a fit is the consequence; the person feels heavy cold chills, sometimes numb and streachy, with other symptoms of stagnation of blood; and the plainest evidence of a stagnated fit is, that the feet are cold in the time of the fit.

This disease, when it is old, is very hard to cure, and needs patience and attention both of the physician and patient. If it was not that some will look for something to be said on this subject, I should leave this disease out of my list; but as the public know that I have cured a few of this disease, and others frequently applying, I hereby give my views in a short manner, for the want of room to pursue the subject further. I am perfectly satisfied that if this disease is taken while young, there will be no difficulty in curing by a regular course of medicine according to the patent; but it is the age of the complaint that makes it constitutional, and that makes it hard to cure. If this disease attacks a young person any time before they get their growth, they ought to try to have it removed before they get their set, lest it be interwoven in their constitutioh, which will make it hard to cure. I find it very hard with some to throw off a stagnation of blood without bringing on them a convulsion fit, which may be said to be opposite of the other. Yet I have found it no serious point to stop the blood from stagnating in any person. But whenever it circulates freely in some, they take a convulsion fit, and to strike the centre ground between these I find it to be difficult.

For a cure, make your No. 2 principally of sulphur and sassafras; take a regular course of medicine; let your diet begin with No. 1, and after three days No. 2 for at least two weeks. If the stagnated fits continue, you can repeat your regular courses of medicine, and add a small portion of prickly ash bark or ginseng with

your No. 2; and if your patient's blood quits stagnating, and they continue to have fits, you must stop your medicines, except one dose a day of No. 1, and give two doses a day of No. 5, and the diet should not exceed No. 4 till the disease wears out, which may be a long time. The patient should exercise themselves as steadily, but not to extremes, especially if they are subject to convulsion fits. Let the patient wear flannel, if convenient, next to the skin, and dress warm and lie warm of nights, and get into a free sweat once a day. By some means their diet should be very fresh, and not much animal food, with a watery diet, which might be sweetened as much as they please. They might make a free use of hickory bark lie during the whole time; and after they have done their courses of medicine, leave No. 1 out, and use no other medicine only one or two doses a day of No. 5 with the lie, except the stagnation should return, and if so, try regular courses of medicine at intervals.

Gravel.—This disease comes from two causes; one is, too much matter in the blood. This comes on people who use a great deal of salt and meat in their diet—that creates matter in their blood. These lumps of matter sometimes have lodged in the arteries, and have become stones, (if accounts be true, which looks probable,) which have been found both in men and beasts, as well as in the bladder, and they have a growing tendency; the other cause is, containing the water in the bladder too long at a time at different times, while the thick part gathers into bodies, and so congeals into a hard substance, and remaining in the water, at length becomes a stone, and has also a growing tendency. There are other causes that create matter in the blood, such as hard drink, for one evidence is that it improves the flesh on them; another is, that spots and cloudy appearances is seen in their face. I have not named these things as the cause of this disease, because I thought I could cure it, but more to keep people from bringing the diseases on them; for with me this is one of the incurable complaints, though sometimes it may be abated so that the patient can have some ease for a while.

Symptoms are as follows:—If it has come from too much matter in the blood, there will be symptoms of stagnation as have been described; but the common symptoms are sometimes that the patient feels a kind of grinding in that part of the body and a stoppage in the water, either in the commencement or towards the close of making water, and sometimes during the whole time, which makes it quite difficult to make water, and their calls to make water are oftener than usual, and sometimes tinctured with blood.

The way to abate this complaint—Give a dose of No. 1, and take a sweat, and then give No. 2, made of sulphur, elder, and angelico, two doses a day for two days, without any other medicine, and let the diet be No. 2 for two days, and then No. 3 for several days, with one dose a day of No. 2; this will sometimes abate it.

The sick headache.—There are several causes that produce this complaint; one is an over sour in the stomach; another is, something that we eat stops up the canals or the vents of the stomach, so that the watery substance that ought to pass out into the blood is now thrown up to the mouth. These, with other causes throw the blood up to the head. I have been plagued with this disease from a child; then I was attacked once or twice a week on an average, and it has followed me all my life, and I have been always trying new cures till four years ago. I have not room in this work to mention the cures and their effects. Between three and four years ago, I took a severe cough and spit blood with abundance of matter, and had other symptoms of a consumption, and I took a regular course of medicine and regulated my diet with a great deal of precision; and after this it was near six months at one time that I was without a headache, and since that time I have regulated my diet, in some degree at times, and found it was the best remedy for the headache. I have been from one week to three months at a time without it since, and would have been longer, but circumstances have called me to changes of business and also changes of diet, which have brought it on me at times, though the cough did not last two months, and I have had no symptoms of it since, which has been near four years.

The gout might be mentioned here, but I will scite my reader to my remarks on a stagnation of blood for the symptoms and cure, except the swelling of the feet and legs.

King's evil comes from nearly the same cause of the gout, though it may come from less excess in drink and diet. I do not know that it can be cured, though it may be eased by living on light diet and taking some doses of No. 1.

Measles.—For the want of managing this complaint right, it frequently brings on the consumption and a number of other complaints; sometimes takes the person off immediately, and others carry the effect with them as long as they live. It creates humor in the blood, and does not discharge it like the small pox by means of sores, but the humor strikes back into the body or else settles in the inside; very little medicine and management taken in time will answer the purpose. When you first discover that any person has the complaint, give some doses of No. 1, and get them into a moist sweat once a day if convenient; let them take two doses a day of No. 2, according to the patent, and let their diet be No. 2; but if the disease is unwilling to come out, or has been out and got struck in again, you may sweat them freely.

Mumps.—Let the patient be dressed warm and lie warm, and exercise as much as convenient; take two doses of No. 1 a d

drink smartly of spice bush tea; let the diet be No. 2 till they get better, and then No. 3, &c.

Dropsy in the blood—There are two causes, one is the stagnation of the blood, which weakens the motion of the heart as well as obstructs the pores of the body with what is called the crassamentum or matter of the blood; another cause is a loss of blood by bleeding or wounds, which not only draws the red part of the blood off faster than the matter part, but weakens the force of the heart, so that it is not able to open the pores and discharge the water from the blood. These remarks may suffice, as I have already mentioned a stagnation of blood.

For a cure, take a regular course of medicine, give a few doses of No. 5 in the course of the time. I have cured several, and found it no difficulty. I have concluded that a dropsy in the body sometimes originated from the same cause, and will be cured by the same means.

A dropsy in the head.—The cause of this disease is as follows: It comes from living on strong diet, with too free a use of salt, or hard drink, or any cause that raises the blood to the head too long at a time with too much severity, till the organs get habitually prone to leaking water or matter.

The diet should be regulated to No. 3, or, at furthest, to No. 4; make a free use of snuffing tobacco, and get into a moist sweat once a day by some means, and take a few doses of No. 2 during the time. By continuing this course a long time, the disease will be apt to wear away.

Rheumatism.—The cause of this complaint I will cite the reader to a stagnation of blood in a general point of view; but though the blood is too thick, yet the person is not sure to feel the complaint till they take cold; and so it is with certain species of typhus fever. When the rheumatism settles all over the body, it acts very much like the typhus fever; when it settles in parts of the body, it has smaller symptoms of the typhus fever. When the matter of the blood shuts the pores in certain limbs or parts, they swell by the water coming against the skin and having no vent. This species of rheumatism is easier cured by a regular course of medicine than the other, that is, where the matter settles on the cords or joints, it then is harder to remove. Relief may be given, and sometimes cured, by applying a plaster of No. 6 to the place, but the surest way of curing is a regular course of medicine.

The flying rheumatism is produced by a stagnation of blood, and is cured in the way we cure all stagnations.

Pleurisy.—The cause of this disease is a cold in the lights. When people have been breathing in warm air, or receiving warm steam into the heart from drinking warm teas, or any other means,

and then immediately receiving cold air to extremes, these sometimes contract cold in that department of the body which often swells the lights, and sometimes affects the pleura, that is the flesh that is joining to the ribs in the hollow part of the body near the point of the shoulder, where the pain is most apt to be felt, though sometimes it affects other parts in the same department; and at other times cold is carried into the blood, and so affects the whole system; or the cold may impress on the outside of the body and shut the pores till it may be called a pleurisy.

The symptoms of this disease are as follows: If the lights are swelled, they generally breath hard; sometimes a pain every breath, either in the breast or shoots toward the point of the shoulder—sometimes all over. The symptoms of a pleurisy and a typhus fever are very nigh alike; the most sensible difference is, the typhus fever may be felt days before it comes on or lays the person up; and the pleurisy comes more sudden. The heavy weight that is felt in the typhus is not so sensibly felt in the pleurisy, and the typhus is not so apt to swell the lights or cause the person to breathe hard as the pleurisy.

For a cure.—This is one of the complaints that is easier cured than any other, or done sooner by giving a dose of No. 1 and No. 2 in the course of half an hour of each other, and then take the person through a regular sweat for about thirty minutes, generally cures by putting them to bed and covering them, so that the sweat does not stop too sudden, or any way so that the sweat ceases moderately—if they set by the fire or stir about, provided they are warm enough. To continue the sweat a short time, I have generally cured people of this complaint in the course of an hour from the time I commence to sweat them. If the practitioner should find that his patient was not cured in the above time, he may just conclude that the complaint is typhus, and he has lost no time, he can continue on according to the rule laid down for that complaint.

Stone bruise and felons.—These complaints come from a bruise that stops the blood vessel next to the bone, and as the water part of the blood is confined, and all the time increasing, it must have vent; and as it raises from next the bone, it sometimes injures the bone before it gets vent. The best means is to lance the place as soon as we find it out, and let the water out, and it commonly gives relief by lancing to the bone.

Lockjaw comes from thick blood in a general point of view. When a person whose blood is thick receives a wound which affects some cord that has access to the jaws, then it takes a set, by the blood being thick that surrounds it.

For a cure, put the person all over in warm water till it comes up to the mouth, for not exceeding five minutes at any one time; rub

and bathe them in the mean time all over, and particularly the jaws. These processes may be repeated several times, or take them through a regular sweat by giving a dose of No. 1.

Cramps is another disease that takes place from the same cause of the blood being thick, and may be cured by the same means for a present cure; but to remove the cause, you must thin the blood for either of these diseases.

Piles is a disease that I am not confident can be cured; yet I suppose they may be relieved for a time. For to relieve a person in this disease, make a medicine of elder bark leaves or flowers, with one-third sulphur, and let them take repeated portions for a day or two, and at the same time inject a salution of it up in their bodies several times; this will commonly relieve them for a while, and to keep as clear of it as possible, let them live on a weak, watery diet or a vegetable food.

A consumption sirup.—Take medicine Nos. 1 and 2, with one-fourth spiknard powders, and put them in a bottle and sweeten them with sugar till it is a weak sirup, and shake your bottle before you drink each time; drink of it three or four times a day; throw yourself into a sweat once a day by some means; dress warm, and lie warm of nights, and live on diet No. 3.

These simple means will generally have a good effect, and sometimes remove the whole disease.

Scald head.—This disease comes from humor in the blood, which sometimes comes into the world with a child. This humor settles on this part of the body, and is easy removed if taken in time, but is like all other diseases; if it is not removed it becomes constitutional, and age makes it hard to cure.

For a cure, make a salution of two-thirds elder bark, flowers, or leaves, powdered, and one-third sulphur, put but a small quantity of water with them, so as to leave them as strong as possible; make a cap of thin leather, or any other thing that will keep the air partly out, and wet the inside of the cap with this solution three times a day, with a small portion of the spirits of turpentine, enough to scent the cap, and let the patient wear this cap till well; let their diet be No. 2 for two or three weeks, and then No. 3 till well. The patient should take one or two doses of No. 4 a day, and get into a moist sweat once a day by some means. They ought to dress warm and lie warm of nights. I have cured but few cases of this disease, but what trials I have made has had the effect to convince me that the disease is curable. But after a person is cured of this disease, they ought to live on a light, fresh, vegetable diet for a season, to keep the disease from returning. When people commence this process, it would be as well to cut their hair off or clip it, and during the time it would be proper to wash the cap once or twice a week.

Humors in the feet.--When I was from fifteen to twenty years old, I had humors in the feet towards the fall of the year, for every year till I was twenty-one, and I was told to wrap up my feet in green elder leaves, and as fast as they dried, apply new ones; and I did so, and found relief immediately. Since that I have told others of this way of curing, and they have done so and have generally been cured. The patient should have a pair of stockings on and stuff the leaves in them round the feet.

Soar eyes.—For a cure, make powders of elder, a half ounce; sulphur, a quarter of an ounce; copperas, a half-quarter of an ounce; mix these together, and put them in a bottle, and put a small quantity of water to them, so as to leave them strong, and let the patient wash their eyes with this water two or three times a day. If the eyes have been a long time soar, and appears to be hard to cure, you may give them diet No. 2, or at most No. 3, during the time. These means will generally cure without fail.

Flooding.—This disease comes from two or three causes, but most generally from a stagnated blood. If it is produced from this cause, the person will feel symptoms of stagnation, and the blood, when it flows will be unmixt in a degree, and have the appearance of other stagnated blood that is drawn from the body by bleeding any other way; the other cause is, the blood is unusually thin, or perhaps a soar or ulcer in that part of the body.

For a cure, take two or three doses a day of No. 5, and let the diet be No. 3; and at the proper time, when this disease has gone off, or between the natural courses, then take them through a regular sweat for the purpose of mixing the blood; one or two sweats at an interval of a day apart, will be found essential when it is caused by a stagnant blood: but if it is produced from the blood being too thin, it is only necessary to give the above quantity of No. 5, and regulate the diet to No. 3, and place a larger plaster of No. 6 between the shoulders, which ought to be done in each case to draw the disease from that part of the body. I have attended to a number of persons who were afflicted with this disease, and it has generally had a good effect, though the subject is too delicate to pursue it in this piece as far as it ought to be done.

I have wrote a piece on the subject of midwifery, but it is borrowed from other books, and corresponds with the balance of this work; but as these books may be used by people who would not make good use of that part, I have concluded not to publish that part at this time—but if it is thought necessary, against I shall publish a second edition, it can be inserted.

Worms.—There are three or four species of worms, and what will cure one will make another worse. I will name the two commonest species: one is the long, red worm that is frequently in the

stomach and bowels, not only of children but also in grown persons.

The way to kill these worms: These worms may be taken off sometimes by large doses of castor oil or a quantity of weak lie, to be taken repeatedly for some days, and use diet No. 2. I have thought that if poison was ever of any use as a medicine, it is to poison these worms to death, as there is a probability of poisoning them, and not injuring the person much, though it will leave some poison in the blood. The way to poison these worms is to give some sugar, about twenty or thirty minutes before you give the dose of poison; your dose of poison may be cartina pink root, a common dose of it, or an even teaspoonful of copperas for a child three years old, and more if the person is older, or less if they are younger. Some make use of a small quantity of Mayapple root; but whatever poison is used, mix it with sugar—these ought to be worked off with fresh broths. But these worms are not very dangerous, only when they choke the person by getting in bunches and getting in the pipes. But these means makes the little stomach worms worse, and this species of worms are more dangerous than the others, and they are apt to improve with bad blood, and get better as the blood is cleansed. For this species of worms give two or three doses of No. 4 a day, by putting them in warm water or tea about fifteen minutes before they are taken, and sweeten them as mentioned before, and the diet ought to be lowered if convenient, and get the person into a moist sweat once a day if possible.

White swellings may be cured, either altogether or for a while, by applying No. 6 to the place till it gets well, and regulate the diet to No. 2 for a week, and then No. 3 till well.

A cold bath may be applied to advantage in a great number of low stagnated complaints, as it seldom has a bad effect when applied right.

The way to apply a cold bath is, either emerse the person in cold water, or pore it on them, they being naked or near so; then put them to bed, cover them warm, and also cover their breath a short time; give some warm teas, which generally produces a sweat, then gradually take the clothes off them, and have them dressed warm between these processes, which may be as often as once a day, or to suit the circumstances: it is entirely a safe operation.

A simple wet fire or costic to burn out cancers and the like, or to destroy proud flesh:—Take pearlash and dissolve it with the oil of vitriol, or mix the oil of vitriol with pearlash till it is soft enough to run in the place so as to penetrate to the bottom of the sore or cancer, and when you wish to stop it, fill the place with sweet oil.

As the medicine No. 1 is somewhat difficult to take, and some people are fond of taking medicine in spirits, you can give it in

French brandy, by putting it or No. 2, or both together, in a bottle of brandy, and shake it well each time before you drink, will answer as good a purpose this way as to take the powders dry and wash them down with tea.

SURGERY.

Broken bones or limbs.—As I do not profess surgery, I will make but a few remarks on that subject. I have discovered a great lack in surgery, in giving directions and medicine to their patients in such cases. It should be strictly understood, that nature is the grand physician to cure bones as well as the flesh, that when a bone is broken & set by any person, the diet should be regulated and the blood calmed by proper means to keep the wound from inflaming or getting humorish, which will be a means of preventing mortification with other consequences. This great lack may not be universal, but it prevails to a great extent. I would rather venture a common skilful person to set a bone by feeling round the limb to place the bones together, and give proper directions for medicines and diet, than to venture a professed doctor to do it, and give no directions to regulate the blood.—Directions for broken bones. Give three doses a day of No. 1, and see that the patient has got into a moist sweat once a day. If you undertake to set a bone or a joint that has slipped, first apply warm water around the place to loosen the cords, then place your bones by feeling around; give diet No. 2 during the whole time till the difficulty or danger is over; then rise to No. 3 till well. Apply medicine No. 6 to the place, or as near it as possible, during the time. A bone ought to be kept very still till it has time to knit together. If the wound should be such as to confine the patient so that they cannot exercise, they ought to have a dose or two of castor oil to keep the bowels regular in their discharge. These directions may be applied to all the receipts for wounds that are in substance. The following are taken in part from M'Kenzie's Receipts.

"Whenever a blow has been inflicted, whether by being thrown from a horse, out of a carriage, by falling from a height, or in any other way, bleed the patient to the amount of twelve or fourteen ounces, on the spot, if practicable, if not, as soon after the accident as possible. This rule admits of but one exception, and that is, when the violence has been so great as nearly to extinguish all the powers of life, in which case it is proper to wait for symptoms of returning animation.

"If, in consequence of a broken bone or other injury, the patient is unable to walk, take a door from its hinges, lay him carefully on it, and have him carried by assistants to the nearest house. If no door or sofa can be procured, two boards, sufficiently long and broad, should be nailed to two cross pieces, the ends of which must pro-

ject about a foot, so as to form handles. If in the woods, or where no boards can be procured, a litter may be formed from the branches of trees. In this way a hand-barrow may be constructed in a few minutes, on which the sufferer may be properly carried.

"If he has been wounded and bleeds, the bleeding must be stopped before he is removed.

"Having reached a house, lay him on a bed, and undress him with care and gentleness. If any difficulty arises in getting off his coat or pantaloons, rip up the seams, rather than use force. This being done, proceed to ascertain the nature of the injury.

"This may be either simple or compound; that is, it may be a contusion or bruise, a wound, fracture, or dislocation, or it may be two or all of them united in one or several parts.

"A contusion is the necessary consequence of every blow, and is known by the swelling and discoloration of the skin.

"Wounds are self-evident.

"Fractures are known by the sudden and severe pain, by the misshapen appearance of the limb, sometimes by its being shortened, by the patient being unable to move it without excruciating pain, but most certainly, by grasping the limb above and below the spot where the fracture is supposed to exist, and twisting it different ways, when a grating will be felt, occasioned by the broken ends of the bone rubbing against each other. If the swelling, however, is very great, this experiment should not be made until it is reduced.

"Dislocations, or bones being out of joint, are known by the deformity of the joint when compared with its fellow, by the pain and inability to move the limb, by its being longer or shorter than usual, and by the impossibility of moving it in particular directions."

"*Of Contusion.*

"If slight, bathe the part frequently with cold vinegar and water for a few hours, and then rub it well with brandy, or spirits of any kind. Should it be very great, or so as to have affected the whole body, which may be known by a general soreness, bleed and purge the patient. If fever comes on, repeat the bleeding and purging. In all cases of this nature, be sure the water is regularly evacuated, for it sometimes happens that in consequence of the nerves of the bladder being palsied by the blow, the patient feels no desire to pass it, though the bladder be full. If a suppression ensues, pass a catheter, if possible, or procure assistance for that purpose."

"*Of Sprains.*

"Plunge the part sprained into very cold water, and hold it there as long at a time as you can bear it—for several hours—then rub it well with camphorated spirits. If the accident has happened to a joint, as in the ankle, and it remains weak, pour cold water on it from the spout of a tea-kettle, held at a distance, several times in

the day. The most serious effects, however, resulting from contusion, are when the blow is applied to the head, producing either concussion or compression of the brain."

"*Concussion of the Brain.*

"*Symptoms.*—The patient is stunned, his breathing slow, drowsiness, stupidity, the pupil of the eye rather contracted, vomiting. After a time he recovers.

"*Treatment.*—Apply cloths dipped in cold vinegar and water to his head, and when the stupor is gone, bleed him and open his bowels with epsom salts. He should be confined to bed, in a quiet situation, and every measure taken to prevent an inflammation of the brain, which, if it comes on, must be treated by copious bleeding, blisters, &c."

"*Compression of the Brain.*

"*Symptoms.*—Loss of sense and motion, slow, noisy and laborious breathing, pulse slow and irregular, the muscles relaxed, as in a person just dead, the pupil of the eye enlarged and will not contract even by a strong light, the patient lies like one in an apoplectic fit, and cannot be roused.

"*Treatment.*—Open a vein and draw off sixteen or twenty ounces of blood, shave the head, and if possible, procure surgical assistance without delay, as there is nothing but an operation that can be of any avail."

"*Of Wounds.*

"Wounds are of three kinds, viz. incised, punctured and contused; among the latter are included gun-shot wounds. The first step in all wounds, is

"*To stop the bleeding.*—If the flow of blood is but triffling, draw the edges of the wound together with your hand, and hold them in that position some time, when it will frequently stop. If, on the contrary, it is large, of a bright red color, flowing in spirits or with a jerk, clap your finger on the spot it springs from, and hold it there with a firm pressure, while you direct some one to pass a handkerchief round the limb (supposing the wound to be in one) above the cut, and to tie its two ends together in a hard knot. A cane, whip-handle, or stick of any kind, must now be passed under the knot, (between the upper surface of the limb and the handkerchief) and turned round and round until the stick is brought down to the thigh, so as to make the handkerchief encircle it with considerable tightness. You may then take off your finger; if the blood still flows, tighten the handkerchief by a turn or two of the stick, until it ceases. The patient may now be removed (taking care to secure the stick in its position) without running any risk of bleeding to death by the way.

"As this apparatus cannot be left on for any length of time, with

out destroying the life of the parts, endeavor as soon as possible to secure the bleeding vessels, and take it off. Having waxed together three or four threads of a sufficient length, cut the ligature they form, into as many pieces as you think there are vessels to be taken up, each piece being about a foot long. Wash the parts with warm water, and then with a sharp hook, or a slender pair of pincers in your hand, fix your eye steadfastly upon the wound, and direct the handkerchief to be relaxed by a turn or two of the stick; you will now see the mouth of the artery from which the blood springs, seize it with your hook or pincers, draw it a little out, while some one passes a ligature round it, and ties it up tight with a double knot. In this way take up in succession every bleeding vessel you can see or get hold of.

"If the wound is too high up in a limb to apply the handkerchief, don't lose your presence of mind, the bleeding can still be commanded. If it is the thigh, press firmly in the groin; if in the arm, with the hand end or ring of a common door key, make pressure above the collar bone, and about its middle against the first rib which lies under it. The pressure is to be continued until assistance is procured, and the vessel tied up.

"If the wound is on the head, press your finger firmly on it, until a compress can be brought, which must be bound firmly over the artery by a bandage. If the wound is in the face, or so situated that pressure cannot be effectually made, or you cannot get hold of the vessel, and the blood flows fast, place a piece of ice directly over the wound, and let it remain there till the blood coagulates, when it may be removed, and a compress and a bandage applied.

Incised Wounds.

By an incised wound is meant a clean cut. Having stopped the bleeding, wash away all the dirt, &c. that may be in it with a sponge and warm water, then draw the sides of the wound together, and keep them in that position by narrow strips of sticking plaster, placed on at regular distances, or from one to two inches apart. A soft compress of old linen or lint may be laid over the whole.

"Should much inflammation follow, remove the strips, bleed and purge the patient (who should live very low, and be kept perfectly quiet) according to the exigency of the case. If it is plain that matter must form before the wound will heal, apply a soft poultice until that event takes place, when dressings of some simple ointment may be substituted for it.

"Although narrow strips of linen, spread with sticking plaster, form the best means of keeping the sides of a wound together, when they can be applied, yet in the ear, nose, tongue, lips, and eye-lids, it is necessary to use stiches, which are made in the following manner: Having armed a common needle with a double waxed thread,

pass the point of it through the skin, at a little distance from the edge of the cut, and bring it out of the opposite one at the same distance. If more than one stitch is required, cut off the needle, thread it again, and proceed as before, until a sufficient number are taken, leaving the threads loose until all the stitches are passed, when the respective ends of each thread must be tied in a hard double knot, drawn in such a way that it bears a little on the side of the cut. When the edges of the wound are partly united by inflammation, cut the knots carefully, and withdraw the threads.

From what has been said, it must be evident that in all wounds, after arresting the flow of blood, and cleansing the parts, if necessary, the great indication is to bring their sides into contact throughout their whole depth, in order that they may grow together as quickly as possible, and without the intervention of matter. To obtain this very desirable result, in addition to the means already mentioned, there are two things to be attended to, the position of the patient and the application of the bandage. The position of the patient should be such as will relax the skin and muscles of the part wounded, thereby diminishing their tendency to separate.

"A common bandage of a proper width, passed over the compresses moderately tight, not only serves to keep them in their place, but also tends by its pressure, to forward the great object already mentioned. If, however, the wound is so extensive and painful that the limb or body of the patient cannot be raised for the purpose of applying or removing it, the best way is to spread the two ends of one or two strips of linen or leather with sticking plaster, which may be applied in place of the bandage, as follows: attach one end of a strip to the sound skin, at a short distance from the edge of the compress, over which it is to be drawn with moderate firmness, and secured in a similar manner on its opposite side. A second or third may, if necessary, be added in the same way.

In all wounds, if violent inflammation come on, reduce it by bleeding, purging, &c.; but if there is reason to fear locked-jaw, give wine, porter, brandy, opium, and a generous diet."

Punctured Wounds.

"These are caused by sharp pointed instruments, as needles, awls, nails, &c. Having stopped the bleeding, withdraw any foreign body, as part of a needle, splinters, bit of glass, &c. that may be in it, provided it can be done easily; and if enlarging the wound a little will enable you to succeed in this, do so. Though it is not always necessary to enlarge wounds of this nature, yet in hot weather it is a mark of precaution, which should never be omitted. As soon as this is done, pour a little turpentine into the wound, or touch it with caustic, and then cover it with a poultice, moistened with laudanum. This practice may prevent locked-jaw, which is but too

frequent a consequence of wounds of this description. When matter forms, cover the part with mild dressings, as a common sore. Laudanum may be given in large doses, to relieve pain, and should the inflammation be excessive, bleed and purge. In hot weather, however, bleeding should be employed in great moderation.

"*Contused Wounds.*

"Wounds of this nature are caused by round or blunt bodies, as musket balls, clubs, stones, &c. They are in general attended but by little bleeding; if, however, there should be any, it must be stopped. If it arises from a ball which can be easily found and withdrawn, it is proper to do so, as well as any piece of the clothing, &c. that may be in it; or if the ball can be distinctly felt directly under the skin, make an incision across it and take it out, but never allow of any poking in the wound to search for such things; the best extractor of them, as well as the first and best application in contused wounds, proceed from what they may, being a soft bread and milk poultice.

"Should the inflammation be great, bleed and purge. Pain may be relieved by laudanum, and if the parts assume a dark look, threatening a mortification, cover them with a blister.

"If the wound is much torn, wash the parts very nicely with warm water, and then (having secured every bleeding vessel) lay them all down in as natural a position as you can, drawing their edges gently together, or as much so as possible, by strips of sticking plaster, or stitches if necessary. A soft poultice is to be applied over the whole."

"*Poisoned Wounds from bites of Mad Dogs, Rattlesnakes, &c.*

"The instant a person is bitten either by a mad dog, rattle-snake, or any rabid animal or reptile, he should apply a ligature by means of the stick, above the wound, as tightly as he can well bear it, and without hesitation or delay, cut out the parts bitten, taking along with them a portion of the surrounding sound flesh. The wound should then be freely touched with caustic, or have turpentine poured into it. A decoction of Spanish flies in turpentine, may also be applied to the skin surrounding the wound. By these means inflammation will be excited, and suppuration follow, which may prevent the usual dreadful consequences of such accidents. As soon as the parts are cut out, take off the ligature.

"Should the patient be too timid to allow the use of the knife, burn the wound very freely with caustic, and place in it a tuft of tow or cotton, well moistened with the above decoction. The discharge of matter that follows should be kept up for some time. The only reasonable chance for safety, is found in the above plan, all the vegetable and mineral productions that have been hitherto recommended as internal remedies, being of very doubtful, if of any efficacy.

"The use of the chlorurets, however, in treating wounds from rabid animals, is now becoming general in France and Germany, and many satisfactory cases are recorded. M. Schoenberg, a German surgeon, states, that of three persons who were bitten by a dog, two used the chloruret of lime, and recovered from their wounds, whilst the third, who refused to submit to the treatment, died raving mad. This gentleman applies to the wounds, twice a day, a piece of lint dipped in the solution of the chlorurets, and orders his patients to take, three times a day, from two drachms to one ounce of the chloruret in water."

"*Stings of Bees and Wasps, Bites of Musquitoes, &c.*

"Nothing relieves the pain arising from the sting of a hornet, bee, or wasp, so soon as plunging the part in extremely cold water, and holding it there for some time. A cold lead-water poultice is also a very soothing application. If a number of these insects have attacked you at once, and the parts stung are much swollen, lose some blood, and take a dose of salts.

"Musquito-bites may be treated in the same manner, although I have found a solution of common salt and water, made very strong, speedy and effectual in relieving the pain. Camphorated spirits, vinegar, &c. may also be used for the same purpose. A solution of Prussian blue in soft water, with which the parts are to be kept constantly moist, is a highly celebrated remedy for the stings of bees, wasps, &c."

"*Wounds of the Ear, Nose, &c.*

"Wash the parts clean, and draw the edges of the wound together by as many stitches as are necessary. If the part is even completely separated, and has been trodden under feet, by washing it in warm water, and placing it accurately in the proper place, by the same means, it will adhere."

"*Wounds of the Scalp.*

"In all wounds of the scalp it is necessary to shave off the hair. When this is done, wash the parts well, and draw the edges of the wound together with sticking plaster. If it has been violently torn up in several pieces, wash and lay them all down on the skull again, drawing their edges as nearly together as possible by sticking plaster, or, if necessary, by stitches. Cover the whole with a soft compress, smeared with some simple ointment."

"*Wounds of the Throat.*

"Seize and tie up every bleeding vessel you can get hold of. If the wind-pipe is cut only partly through, secure it with sticking plaster. If it is completely divided, bring its edges together by stitches, taking care to pass the needle through the loose membrane that covers the wind-pipe, and not through the wind-pipe itself. The head should be bent on the breast, and secured by bolsters and ban-

ages in that position, to favor the approximation of the edges of the wound."

"*Wounds of the Chest.*

"If it is a simple incised wound, draw the edges of it together by sticking plaster, cover it with a compress of linen, and pass a bandage round the chest. The patient is to be confined to his bed, and to be bled and purged, in order to prevent inflammation. If the latter comes on, reduce it by copious and frequent bleedings.

"Should it be occasioned by a bullet, extract it, and any pieces of cloth, &c. that may be lodged in it, if possible, and cover the wound with a piece of linen smeared with some simple ointment, taking care that it is not drawn into the chest. If a portion of the lung protrudes, return it without any delay, but as gently as possible."

"*Wounds of the Belly.*

"Close the wound by strips of sticking plaster, and stitches passed through the skin, about half an inch from its edges, and cover the whole with soft compress, secured by a bandage. Any inflammation that may arise is to be reduced by bleeding, purging, and a blister over the whole belly.

"Should any part of the bowels come out at the wound, if clean and uninjured, return it as quickly as possible; if covered with dirt, clots of blood, &c. wash it carefully in warm water previous to so doing. If the gut is wounded, and only cut partly through, draw the two edges of it together by a stitch, and return it; if completely divided, connect the edges by four stitches at equal distances, and replace it in the belly, always leaving the end of the ligature project from the external wound, which must be closed by sticking plaster. In five or six days, if the threads are loose, withdraw them gently and carefully.

"*Wounds of Joints.*

"Bring the edges of the wound together by sticking plaster, without any delay, keep the part perfectly at rest, bleed and purge, to prevent inflammation. Should it come on, it must be met at its first approach by bleeding to as great an extent as the condition of the patient will warrant, and by a blister covering the whole joint. If a permanent stiffening of the joint seems likely to ensue, keep the limb in that position which will prove most useful; that is, the leg should be extended, and the arm bent at the elbow. Wounds of joints are always highly dangerous, and frequently terminate in death."

"*Wounds of Tendons.*

"Tendons, or sinews, are frequently wounded and ruptured. They are to be treated precisely like any other wound, by keeping their divided parts together. The tendon which connects the great muscle forming the calf of the leg, with the heel, called the tendon of Achil-

les, is frequently cut with the adze, and ruptured in jumping from heights. This accident is to be remedied by drawing up the heel, extending the foot, and placing a splint on the fore part of the leg, extending from the knee to beyond the toes, which being secured in that position by a bandage, keep the foot in the position just mentioned. The hollows under the splint must be filled up with tow or cotton. If the skin falls into the space betweeen the ends of the tendon, apply a piece of sticking plaster, so as to draw it out of the way. It takes five or six weeks to unite, but no weight should be laid on the limb for several months."

"*Of Fractures.*

"The signs by which fractures may be known, having been already pointed out with sufficient minuteness, it will be unnecessary to dwell thereon; it will be well, however, to recollect this general rule: In cases, where, from the accompanying circumstances and symptoms, a strong suspicion exists that the bone is fractured, it is proper to act as though it were positively ascertained to be so.

"*Fracture of the Bone of the Nose.*

"The bones of the nose from their exposed situation, are frequently forced in. Any smooth article that will pass into the nostril should be immediately introduced with one hand, to raise the depressed portions to the proper level, while the other is employed in moulding them into the required shape. If violent inflammation follows, bleed and purge."

"*Fracture of the Lower Jaw.*

"This accident is easily discovered by loooking into the mouth, and is to be remedied by keeping the lower jaw firmly pressed against the upper one, by means of a bandage passed under the chin and over the head. If it is broken near the angle, or that part nearest the ear, place a cushion or roll of linen in the hollow behind it, over which the bandage must pass, so as to make it push that part of the bone forward. The parts are to be confined in this way for twenty days, during which time, all the nourishment that is taken should be sucked between the teeth. If in consequence of the blow, a tooth is loosened, do not meddle with it, for if let alone, it will grow fast again."

"*Fracture of the Collar Bone.*

"This accident is a very common occurrence, and is known at once by passing the finger along it, and by the swelling, &c. To reduce it, seat the patient in a chair without any shirt, and place a pretty stout compress of linen, made in the shape of a wedge, under his arm, the thick end of which should press against the arm-pit. His arm, bent to a right angle at the elbow, is now to be brought down to his side, and secured in that position by a long bandage, which passes over the arm of the affected side and round

the body. The fore-arm is to be supported across the breast by a sling. It takes from four to five weeks to re-unite."

"*Fractures af the Arm.*

"Seat the patient on a chair, or the side of a bed, let one assistant hold the sound arm, while another grasps the wrist of the broken one and steadily extends it in an opposite direction, bending the fore-arm a little, to serve as a lever. You can now place the bones in their proper situation. Two splints of shingle or stout paste board, long enough to reach from below the shoulder to near the elbow, must then be well covered with tow or cotton, and laid along each side of the arm, and kept in that position by a bandage. The fore-arm is to be supported in a sling. Two smaller splints may for better security be laid between the first ones, that is one on top, and the other underneath the arm, to be secured by the bandage in the same way as the others."

"*Fractures of the Bones of the Fore-Arm.*

"These are to be reduced precisely in the same way, excepting the mode of keeping the upper portion of it steady, which is done by grasping the arm above the elbow. When the splints and bandage are applied, support it in a sling."

"*Fractures of the Wrist.*

"This accident is of rare occurrence. When it does happen the injury is generally so great as to require amputation. If you think the hand can be saved, lay it on a splint well covered with tow; this extends beyond the fingers; place another splint opposite to it, lined with the same soft material, and secure them by a bandage. The hand is to be carried in a sling.

"The bones of the hand are sometimes broken. When this is the case, fill the palm with soft compresses or tow, and then lay a splint on it, long enough to extend from the elbow to beyond the ends of the fingers, to be secured by a bandage, as usual.

"When a finger is broken, extend the end of it until it becomes straight, place the fractured portion in its place, and then apply two small pasteboard splints, one below and the other above, to be secured by a narrow bandage. The top splint should extend from the end of the finger over the back of the hand. It may sometimes be proper to have two additional splints for the sides of the finger."

"*Fractures of the Ribs..*

"When, after a fall or blow, the patient complains of a pricking in his side, we may suspect a rib is broken. It is ascertained by placing the tips of two or three fingers on the spot where the pain is, and desiring the patient to cough, when the grating sensation will be felt. All that is necessary, is to pass a broad bandage round the chest, so tight as to prevent the motion of the ribs in breathing."

"*Fractures of the Thigh.*

"This bone is frequently broken, and hitherto has been considered the most difficult of all fractures to manage. To the ingenuity, however, of Dr. Hartshorne, the world is indebted for an apparatus which does away the greatest impediments that have been found to exist in treating it, so as to leave a straight limb, without lameness or deformity; nor is it the least of its merits, that any man of common sense can apply it nearly as well as a surgeon..

"It consists of two splints made of half or three-quarter inch well seasoned stuff, from eight to ten inches wide, one of which should reach from a little above the hip, to fifteen or sixteen inches beyond the foot, while the other extends the same length from the groin. The upper end of the inner splint is hollowed out and well padded or stuffed. Their lower ends are held together by a cross piece, having two tenons, which enter two vertical mortices, one in each splint, and secured there by pins. In the centre of this cross piece (which should be very solid) is a female screw. Immediately above the vertical mortices, are two horizontal ones of considerable length, in which slides the tenons of a second cross piece, to the upper side of which is fastened a foot block, shaped like the sole of a shoe, while in the other is a round hole for the reception of the head of the male screw, which passes through the female one just noticed. On the top of this cross piece, to which the foot block is attached, are two pins, which fall into grooves at the head of the screw, thereby firmly connecting them. The foot block, as before observed, is shaped like the sole of a shoe. Near the toe is a slit, through which passes a strap and buckle. Near the heel are a couple of straps, with two rings, arranged precisely lik those of a skate, of which, in fact, the whole foot block is an exact resemblance. A long male screw, of wood or other material, completes the apparatus.

"To apply it, put a slipper on the foot of the broken limb, and lay the apparatus over the leg. By turning the screw, the foot b ock will be forced up to the foot in the slipper, which is to be firmly strapped to it, as boys fasten their skates. By turning the screw the contrary way, the padded extremity of the inner splint presses against the groin, and the foot is gradually drawn down, until the broken limb becomes of its natural length and appearance, when any projection or little inequality that may remain, can be felt and reduced by a gentle pressure of the hand.

"The great advantages of this apparatus, I again repeat, are the ease with which it is applied and the certainty with which it acts. The foot once secured to the block, in a way that every school-boy understands, nothing more is required than to turn the screw until the broken limb is found to be of the same length as the sound one. It is right to observe that the

should not be effected at once, it being better to turn the screw a little every day, until the limb is sufficiently extended.

"As this apparatus may not always be at hand, it is proper to mention the next best plan of treating the accident. It is found in the splints of Desault, improved by Dr. Physic, consisting of four pieces. The first has a crutch head, and extends from the arm-pit to six or eight inches beyond the foot. A little below the crutch are two holes, and near the lower end on the inside, is a block, below which there is also a hole. The second reaches from the groin, the same length with the first, being about three inches wide above and two below. Two pieces of stout pasteboard, as many handkerchiefs or bands of muslin, with some tow, and a few pieces of tape, from the catalogue of the apparatus.

"It is applied as follows: Four or five pieces of tape are to be laid across the bed, at equal distances from each other. Over the upper two, is placed one of the short pasteboard splints, well covered with tow. The patient is now to be carefully and gently placed on his back, so that his thigh may rest on the splint. One of the handkerchiefs, or a strong soft band, is to be passed between the testicle and thigh of the affected side, and its ends held by an assistant standing near the head of the bed. The second handkerchief is to be passed round the ankle, crossed on the instep and tied under the sole of the foot. By steadily pulling these two handkerchiefs, the limb is to be extended, while with the hand, the broken bones are replaced in their natural position. The long splint is now to be placed by the side of the patient, the crutch in the arm-pit, (which is defended with tow,) while the short one is laid along the inside of the thigh and leg. The ends of the first handkerchief, being passed through the upper holes, are to be drawn tight and secured by a knot, while the ends of the second one pass over the block before mentioned, to be fastened in like manner at the lower one. All that remains is the short pasteboard splint, which being well covered with tow, is to be laid on the top of the thigh. The tapes being tied so as to keep the four splints together, completes the operation.

"Tow is to be every where interposed between the splints and the limb, and a large handful of it placed in the groin, to prevent irritation from the upper or counter extending band. It is necessary to be careful, while tying the two handkerchiefs, that they are not relaxed, so that if the operation is properly performed, the two limbs will be nearly of an equal length.

"The superior advantages of Hartshorne's apparatus over this, as well as all others, must be evident to every one acquainted with the difficulty of keeping up that constant extension which is so absolutely necessary to avoid deformity and lameness, and which is so completely effected by the screw. Next to that, however, stands the

one just described, which can be made by any carpenter in a few minutes, and which, if carefully applied, will be found to answer extremely well.

"Fractured thighs and legs generally re-unite in six or eight weeks; in old men, however, they require three or four months.

"In cases of fracture of the thigh or leg, the patient should always, if possible, be laid on a matrass, supported by boards instead of the sacking, which, from its elasticity and the yielding of the cords, is apt to derange the position of the limb."

"*Fractures of the Knee-Pan.*

"This accident is easily ascertained on inspection. It may be broken in any direction, but is most generally so across or transversely. It is reduced by bringing the fragments together, and keeping them in that position by a long bandage passed carefully round the leg, from the ankle to the knee, then pressing the upper fragment down so as to meet its fellow, (the leg being extended,) and placing a thick compress of linen above it, over which the bandage is to be continued.

"The extended limb is now to be laid on a broad splint, extending from the buttock to the heel, thickly covered with tow to fill up the inequalities of the leg. For additional security, two strips of muslin may be nailed to the middle of the splint, and one on each side, and passed about the joint, one below, the other above, so as to form a figure of eight. In twenty or thirty days the limb should be moved a little to prevent stiffness.

"If the fracture is through its length, bring the parts together, place a compress on each side, and keep them together with a bandage, leaving the limb extended and at rest. Any inflammation in this, or other fracture, is to be combated by bleeding, &c."

"*Fracture of the Leg.*

"From the thinness of the parts covering the principal bone of the leg, it is easy to ascertain if it is broken obliquely. If, however, the fracture be directly across, no displacement will occur, but the pain, swelling, and the grating sensation, will sufficiently decide the nature of the accident.

"If the fracture is oblique, let two assistants extend the limb, while the broken parts are placed by the hand in their natural position. Two splints, that reach from a little above the knee to nine or ten inches below the foot, having near the upper end of each four holes, and a vertical mortice near the lower end, into which is fitted a cross piece, are now to be applied as follows: Lay two pieces of tape about a foot long, on each side of the leg, just below the knee joint, and secure them there by several turns of a bandage; pass a silk handkerchief round the ankle, cross it on the instep, and tie it under the sole of the foot. The two splints are now placed one on

each side of the leg, the four ends of the pieces of tape passed through the four holes and firmly tied, and the cross piece placed in the mortice. By tying the ends of the handkerchief to this cross piece the business is finished.

"If the fracture is across, and no displacement exists, apply two splints of stout pasteboard, reaching from the heel to the knee, and well covered with tow, one on each side of the leg, securing them by a bandage passing round the limb, and outside the splints.

"In cases of oblique fractures of the leg close to the knee, Hartshorne's apparatus for fractured thighs should be applied, as already directed."

"*Fractures of the Bones of the Foot..*

"The bone of the heel is sometimes, though rarely, broken. It is known by a crack at the moment of the accident, a difficulty in standing, by the swelling, and by the grating noise on moving the heel. To reduce it, take a long bandage, lay the end of it on the top of the foot, carry it over the toes under the sole, and then by several turns secure it in that position.

"The foot being extended as much as possible, carry the bandage along the back of the leg above the knee, where it is to be secured by several turns, and then brought down on the front of the leg, to which it is secured by circular turns. In this way the broken pieces will be kept in contact, and in the course of a month or six weeks will be united.

"Fractures of the foot, toes, &c. are to be treated like those of the hand and fingers."

"*Of Dislocations.*

"The signs by which a dislocation may be known, have been already mentioned. It is well to recollect that the sooner the attempt is made to reduce it, the easier it will be done. The strength of one man, properly applied, at the moment of the accident, will often succeed in restoring the head of a bone to its place, which in a few days would have required the combined efforts of men and pulleys. If after several trials with the best apparatus that can be mustered, you find you cannot succeed, make the patient drink strong hot toddy of brandy or other spirits, until he is very drunk. In this way, owing to the relaxed state of the muscles, a very slight force will often be sufficient, where a very great one has been previously used without effect.

"If any objections are made to this proceeding, or if the patient will not consent to it, having your apparatus (which is presently to be mentioned) all ready, make him stand up, and bleed him in that position until he faints; the moment this happens, apply your extending and counter-extending forces. Another important rule is, to vary the direction of the extending force. A slight pull in one

way will often effect what has been in vain attempted by great force in another.

"*Dislocation of the Lower Jaw.*

"This accident, which is occasioned by blows, or yawning, is known by an inability to shut the mouth, and the projection of the chin. To reduce it, seat the patient in a chair with his head supported by the breast of an assistant, who stands behind him. Your thumbs being covered with leather, are then to be pushed between the jaws, as far back as possible, while with the fingers, outside, you grasp the bone, which is to be pressed downwards, at the same time that the chin is raised. If this is properly done, the bone will be found moving, when the chin is to be pushed backwards, and the thumbs slipped between the jaws and the cheeks. If this is not done, they will be bitten by the sudden snap of the teeth as they come together. The jaws should be kept closed by a bandage for a few days."

"*Dislocation of the Collar Bone.*

"This bone is rarely dislocated. Should it occur, apply the bandages, &c. directed for a fracture of the same part."

"*Dislocation of the Shoulder.*

"Dislocations of the shoulder are the most common of all accidents of the kind. It is very easily known by the deformity of the joint, and the head of the bone being found in some unnatural position. To reduce it, seat the patient in a chair, place one hand on the prominent part of the shoulder blade, just above the spot where the head of the bone should be, while with the other you grasp the arm above the elbow and pull it outwards.

"Should this not succeed, lay the patient on the ground, place your heel in his arm-pit, and steadily and forcibly extend the arm, by grasping it at the wrist. The same thing may be tried in various positions, as placing yourself on the ground with him, laying him on a low bed, while you are standing near the foot of it, &c.

"If this fails, pass a strong band over the shoulder, carry it across the breast, give the ends to assistants, or fasten them to a staple in the wall; the middle of a strong band or folded towel is now to be laid on the arm above the elbow, and secured there by numerous turns of the bandage. The two ends of the towel being then given to assistants, or connected with a pulley, a steady, continued, and forcible extension is to be made, while with your hands you endeavor to push the head of the bone into its place."

"*Dislocation of the Elbow.*

"If the patient has fallen on his hands, or holds his arm bent at the elbow, and every endeavor to straighten it gives him pain, it is dislocated backwards. Seat him in a chair, let one person grasp the arm near the shoulder, and another the wrist, and forcibly extend it,

while you interlock the fingers of both hands just above the elbow, and pull it backwards, remembering that under those circumstances, whatever degree of force is required, should be applied in this direction. The elbow is sometimes dislocated sideways or laterally. To reduce it, make extension by pulling at the wrist, while some one secures the arm above, then push the bone into its place, either inwards or outwards, as may be required. After the reduction of a dislocated elbow, keep the joint at perfect rest for five or six days, and then move it gently. If inflammation comes on, bleed freely, purge, &c."

"*Dislocation of the Wrist, Fingers, &c.*

"Dislocation of the wrist, fingers, and thumb, are readily perceived on examination; they are all to be reduced by forcibly extending the lower extremity of the part, and pushing the bones into their place. If necessary, small bands may be secured to the fingers by a narrow bandage, to facilitate the extension. These accidents should be attended to without delay, for if neglected for a little time, they become irremediable."

"*Dislocation of the Thigh.*

"Notwithstanding the hip joint is the strongest one in the body, it is sometimes dislocated. As a careful examination of the part, comparing the length and appearance of the limb with its fellow, &c. sufficiently mark the nature of the accident, we will proceed to state the remedy.

"Place the patient on his back, upon a table covered with a blanket. Two sheets, folded like cravats, are then to be passed between the thigh and testicle of each side, and their ends (one half of each sheet passing obliquely over the belly to the opposite shoulder, while the other half passes under the back in the same direction) given to several assistants, or what is much better, tied very firmly to a hook, staple, post, or some immoveable body. A large, very strong napkin, folded as before, like a cravat, is now to be laid along the top of the thigh, so that its middle will be just above the knee, where it is to be well secured by many turns of a bandage. The two ends are then to be knotted. If you have no pulleys, a twisted sheet or rope may be passed through the loop formed by the napkin. If you can procure the former, however, cast the loop over the hook of the lower block, and secure the upper one to the wall, directly opposite to hooks or men that hold the sheets that pass between the thighs. A steadily increasing and forcible extension of the thigh is then to be made by the men who are stationed at the pulleys or sheet, while you are turning and twisting the limb to assist in dislodging it from its unnatural situation. By these means, properly applied, the head of the bone will frequently slip into its socket with a loud noise.

If, however, you are foiled, change the direction of the extending force, recollecting always, that it is not by sudden or violent jerk,

that any benefit can be attained, but by a steady increasing and long continued pull. Should all your efforts prove unavailing, (I whould not advise you to lose much time before you resort to it), make the patient, as before directed, excessively drunk, and when he cannot stand, apply the pulleys. If this fails, or is objected to, bleed him till he faints, and then try it again."

"*Dislocation of the Knee-Pan.*

"When this little bone is dislocated, it is evident on the slightest glance. To reduce it, lay the patient on his back, streighten the leg, lift it up to a right angle with his body, and in that position push the bone back to its place. The knee should be kept at rest for a few days."

"*Dislocation of the Leg.*

"As these accidents cannot happen without tearing and lacerating the soft parts, but little force is required to place the bones in their natural situation. If the parts are so much torn that the bone slips again out of place, apply Hartshorne's or Dessault's apparatus for a fractured thigh."

"*Dislocation of the Foot.*

"The foot is seldom dislocated. Should it happen, however, let one person secure the leg, and another draw the foot, while you push the bone in the contrary way to that in which it was forced out. The part is then to be covered with compresses dipped in lead water, and a splint applied on each side of the leg, that reaches below the foot. Accidents of this nature are always dangerous; all that can be done to remedy them consists in the speedy reduction of the bone, keeping the parts at rest, and subduing the inflammation by bleeding, &c.

"*Of Compound Accidents.*

"Having spoken of the treatment to be pursued for a bruise, wound, fracture, and dislocation, as happening singly, it remains to state what is to be done when they are united.

"We will suppose that a man has been violently thrown from a carriage. On examination, a wound is found in his thigh, bleeding profusely, his ankle is out of joint, with a wound communicating with its cavity, and the leg broken.

"In the first place, stop the bleeding from the wound in the thigh, reduce the dislocation next, draw the edges of the wounds together with sticking plaster, and lastly, apply Hartshorne's or Dessault's apparatus to remedy the fracture.

"If, instead of a wound, fracture and dislocation, there is a concussion or compression of the brain, a dislocation and fracture, attend to the concussion first, the dislocation next, and the fracture the last."

"*Of Amputation.*

"As accidents sometimes happen at sea, or in situations where it

is impossible to obtain a surgeon, and which require the immediate amputation of a limb, it is proper to say a few words on that subject. To perform the operation is one thing, and to know when it ought to be performed is another. Any man of common dexterity and firmness can cut off a leg, but to decide upon the necessity of doing so, requires much judgment, instances having occurred where, under the most seemingly desperate circumstances, the patient through fear or obstinacy has refused to submit to the knife, and yet afterwards recovered.

"Although in many cases much doubt may exist in determining whether it is proper to amputate or not, yet in others, all difficulty vanishes, as when a ball has carried away an arm. Suppose for a moment while rolling in a heavy sea, during a gale, the lashings of a gun give way, by which a man has his knee, leg, or ankle completely mashed, or that either of those parts are crushed by a fall from the topgallant yard, a falling tree, &c. The great laceration of blood vessels, nerves and tendons, the crushing and splintering of the bones, almost necessarily resulting from such accidents, render immediate amputation an unavoidable and imperious duty.

"If there are none of the regular instruments at hand, you must provide the following, which are always to be had, and which answer extremely well—being careful to have the knives as sharp and smooth as possible.

"*Instruments.*—The handkerchief and stick, a carving or other large knife, with a straight blade, a penknife, a carpenter's tenon or mitre saw, a slip of leather or linen, three inches wide and eighteen or twenty long, slit up the middle to the half of its length, a dozen or more ligatures, each about a foot long, made of waxed thread, bobbin, or fine twine, a hook with a sharp point, a pair of slender pincers, several narrow strips of sticking plaster, dry lint, a piece of linen, large enough to cover the end of the stump, spread with simple ointment or lard, a bandage three or four yards long, the width of your hand, sponges and warm water.

"*Amputation of the Arm.*

"*Operation.*—Give the patient sixty drops of laudanum, and seat him on a narrow and firm table or chest, of a convenient height, so that some one can support him, by clasping him round the body. If the handkerchief and stick have not been previously applied, place it as high up the arm as possible, (the stick being very short,) and so that the knot may pass on the inner third of it. Your instruments having been placed regularly on a table or waiter, and within reach of your hand, while some one supports the lower end of the arm, and at the same time draws down the skin, take the large knife and make one straight cut all round the limb, through the skin and fat only, then with the penknife separate as much of the skin from

the flesh above the cut, and all round it, as will form a flap to cover the face of the stump; when you think there is enough separated, turn it back, where it must be held by an assistant, while with the large knife you make a second straight incision round the arm and down to the bone, as close as you can to the double edge of the flap, but taking great care not to cut it. The bone is now to be passed through the slit in the piece of linen before mentioned, and pressed by its ends against the upper surface of the wound by the person who holds the flap, while you saw through the bone as near to it as you can. With the hooks or pincers, you then seize and tie up every vessel that bleeds, the largest first, and smaller ones next, until they are all secured. When this is done, relax the stick a little; if an artery springs, tie it as before. The wound is now to be gently cleansed with a sponge and warm water, and the stick to be relaxed. If it is evident that the arteries are all tied, bring the flap over the stump, draw its edges together with strips of sticking plaster, leaving the ligature hanging out at the angles, lay the piece of linen spread with ointment over the straps, a pledget of linen over that, and secure the whole by the bandage, when the patient may be carried to bed, and the stump laid on a pillow.

"The handkerchief and stick are to be left loosely round the limb, so that if any bleeding happens to come on, it may be tightened in an instant by the person who watches by the patient, when the dressings must be taken off, the flap raised, and the vessel be sought for and tied up, after which, every thing is to be placed as before.

"It may be well to observe that in sawing through the bone, a long and free stroke should be used, to prevent any hitching, as an additional security against which, the teeth of the saw should be well sharpened and set wide.

"There is also another circumstance, which it is essential to be aware of; the ends of divided arteries cannot at times be got hold of, or being diseased their coats give way under the hook, so that they cannot be drawn out; sometimes, also, they are found ossified or turned into bone. In all these cases, having armed a needle with a ligature, pass it through the flesh round the artery, so that when tied, there will be a portion of it included in the ligature along with the artery. When the ligature has been made to encircle the artery, cut off the needle and tie it firmly in the ordinary way.

"The bandages, &c. should not be disturbed for five or six days, if the weather is cool; if it is very warm, they may be removed in three. This is to be done with the greatest care, soaking them well with warm water until they are quite soft, and can be taken away without sticking to the stump. A clean plaster, lint, and bandage are then to be applied as before, to be removed every two days. At the expiration of fourteen or fifteen days the ligatures generally

come away; and in three or four weeks, if every thing goes on well, the wound heals."

"*Amputation of the Thigh.*

"This is performed in precisely the same manner as that of the arm, with one exception, it being proper to interpose a piece of lint between the edges of the flap, to prevent them from uniting until the surface of the stump has adhered to it."

"*Amputation of the Leg.*

"As there are two bones in the leg which have a thin muscle between, it is necessary to have an additional knife to those already mentioned, to divide it. It should have a long narrow blade, with a double cutting edge, and a sharp point; a carving or case knife may be ground down to answer the purpose, the blade being reduced to rather less than half an inch in width. The linen or leather strip should also have two slits in it instead of one. The patient is to be laid on his back, on a table covered with blankets or a matrass, with a sufficient number of assistants to secure him. The handkerchief and stick being applied on the upper part of the thigh, one person holds the knee, and another the foot and leg as steadily as possible, while with the large knife the operator makes an oblique incision round the limb, through the skin, and beginning at five or six inches below the knee-pan, and carrying it regularly round in such manner that the cut will be lower down on the calf than in front of the leg. As much of the skin is then to be separated by the penknife as will cover the stump. When this is turned back, a second cut is to be made all round the limb and down to the bones, when with the narrow bladed knife, just mentioned, the flesh between them is to be divided. The middle piece of the leather strip is now to be pulled through between the bones, the whole being held back by the assistant, who supports the flap while the bones are sawed, which should be so managed that the smaller one is completely cut through by the time the other is only half so. The arteries are then to be taken up, the flap brought down and secured by adhesive plaster, &c. as already directed."

"*Amputation of the Fore-Arm.*

"As the fore-arm has two bones in it, the narrow bladed knife, and the strip of linen with three tails, are to be provided. The incision should be straight round the part, as in the arm, with this exception, complete it as directed for the preceding case."

"*Amputation of Fingers and Toes.*

"Draw the skin back, and make an incision round the finger, a little below the joint it is intended to remove, turn back a little flap to cover the stump, then cut down to the joint, bending it so that you can cut through the ligaments that connect the two bones, the under one first, then that on the side. The head of the bone is then to be

turned out, while you cut through the remaining soft parts. If you see an artery spirt, tie it up, if not, bring down the flap and secure it by a strip of sticking plaster, and a narrow bandage over the whole.

"*Remarks.*—To prevent the troublesome consequences of secondary bleeding, before the strips of plaster are applied over the edges of the flap, give the patient, if he is faint, a little wine and water, and wait a few minutes to see whether the increased force it gives to the circulation, will occasion a flow of blood; if it does, secure the vessel it comes from. If there is a considerable flow of blood from the hollow of the bone, place a small cedar plug in it. Should violent spasms of the stump ensue, have it carefully held by assistants, and give the patient large doses of laudanum; it may, in fact, be laid down as a general rule, that after every operation of the kind, laudanum should be given in greater or less doses, as the patient may be in more or less pain."

"*Of Suspended Animation.*

"*From Drowning.*—The common methods of rolling the body of a drowned person on a barrel, or holding it up by the heels, &c. are full of danger, and should never be permitted. If a spark of life should happen to remain, this violence would extinguish it for ever. As soon, therefore, as the body is found, convey it as gently as possible to the nearest house, strip it of the wet clothes, dry it well, and place it on a bed between warm blankets, on the right side, with the head elevated by pillows. Every part is to be now well rubbed with flannels dipped in warm brandy, or spirits of any kind, while a warming pan, hot bricks, or bottles or bladders filled with warm water, are applied to the stomach, back and soles of the feet. During these operations a certain number of the assistants (no more persons are to be allowed in the room than are absolutely necessary) should try to inflate the lungs, by blowing through the nozzle of a common bellows, or a pipe of any kind, placed in one nostril, while the other with the mouth are kept closed. If a warm bath can be procured, place the body in it. Clysters of warm brandy and water, salt and water, or peppermint water may be injected.

"All these operations, particularly rubbing the body, and trying to inflate the lungs, should be continued for six or eight hours, and when the patient has come to himself, small quantities of warm wine, wine-whey, brandy and water, &c. may be given to him from time to time. If, after he has recovered, a stupor or drowsiness remains, (but not before,) bleed him very moderately.

"Should the accident occur in winter, and the body feel cold, as if frozen, previously to applying warmth, rub it well with snow, ice, or very cold water. Above all things remember that perseverance for many hours in the remedies pointed out, may give you the unspeakable pleasure of restoring a fellow creature to life.

"*From Cold.*—Take the body into a room, the doors and windows of which are open, and where there is no fire, and rub it with snow or cold water, if this can be procured in plenty, the patient, with the exception of his face, which should be left out, may be completely covered with it to the thickness of two feet. After a while, friction with flannels and hot spirits are to be used, as in the preceding case, and warmth very gradually applied. The lungs are to be inflated, as directed in cases of drowning, and when the patient is able to swallow, warm wine, &c. may be given in small quantities.

"If a limb is frost-bitten, the cold applications used should be continued longer, and warmth be more gradually applied than when the whole body is frozen. Care should be taken to handle the parts carefully, so as not to break off the ear, tip of the nose, &c.

"*From Hanging.*—The remedies for this accident are the same as in drowning, with the addition of taking away a small quantity of blood, by cupping glasses, from the neck, or by opening the jugular vein.

"*From Foul Air.*—Throw open the doors and windows, or take the patient into the open air, and seat him, undressed, well wrapped in a blanket, in a chair, a little leaning to the right side, place his feet or whole body in a bath, and sprinkle his stomach with cold vinegar or water, and rub it immediately with flannels dipped in oil. Clysters of vinegar and water are to be injected, and when animation returns, continue the frictions, and give warm mint tea, &c."

INDIAN CUSTOMS AND DOCTORINGS.

From my acquaintance with the different plans of Indian doctoring, I shall try to select such parts as I consider most genuine and useful to lay before the readers; as there are several plans that go under this name, we are left to conjecture what is genuine and what is not. If any of my readers should have a better knowledge of any particular point of this doctoring than I have, I shall feel very much obliged to them to let me know; and if it should be found to be an advantage, I will recompense them, for my object is to get as near the substance of the system as possible. But I have compiled this work from the various ones, according to the best of my knowledge and ability. In point of customs, I have learned from Dr. B Rush's work on this subject, with my own acquaintance with them; and in point of doctoring, I have leaned more on others. Dr. Richard Carter, of Kentucky, has given his own views of doctoring, but has not been so careful to give the views of Indians as he ought to have done, provided he was acquainted with them as he professes to be; and his work appears to be a mixture of medical doctrine, with his own inventions, and bordering in some degree on Indian doctoring. I have not learned from it as much as from some others

and in examining the different systems, to select that part which I supposed to be Indian doctoring and customs, I sometimes judge from the appearance or manner of it, and other times from the title or manner of language made use of. Roots and herbs that had an Indian name to them, I took for granted that the Indians used them. As I do not suppose that mine is genuine in every point, I shall wish persons to assist me to correct it, wherein it is wrong, though I fancy that the reader will find it as near correct, if not more so, than any other that is now in vogue.

A great deal of the future health of man depends on his origination and rise in the world. A child born of healthy parents, and being exposed to the different elements, at or near its birth, that is, of cold water or air, with other changes, such children generally bring into the world a system formed by nature to resist the cause of diseases. The treatment of children among the Indians tends to secure this firmness of constitution, that becomes in some degree hereditary. To harden them against the inclemency of the weather, some of them emerse their children in cold water frequently, and others expose them to the cold when they are quite young, or bathe them in cold water; and to preserve their shape, they are tied to a board with their backs for several months, and entirely live on their mother's milk. The friction and speedy motion of the system and blood in infancy, forbid stimulating food of all kinds. Nature never calls for animal food until she has provided the child with teeth which are necessary to chew. I am at a loss to express my views of the injury done in our country, as well as in the world in general, by living on strong stimulating diet, and especially while young. We may observe that there are but few cases of fits of any kind among families that live on light diet; and especially in childhood; their sensitive or mental faculties are generally more lively as well as the common motions of the body are more active; and they are more clear of ulcers, swellings, cancers and the like, with other advantages. The Indian children are frequently part naked in their common deportment in life, and either barefooted or wear a kind of thin mockasin which is but little defence against water or cold; their tents partly open, and even sometimes without tents, and the tops of their heads are generally exposed to the elements; and living partly naked in this way, they frequently receive the showers of rain, commencing to wet the top of their heads and so penetrating down the body, which seldom has a bad effect In this way their constitutions are prepared to stand the inclemency of the weather; and what we call a bad cold is almost a stranger among them. The diet of Indians are generally more fresh than ours, and wild animals are easier digested than tame ones. Their vegetables consist of roots and fruits, which are also easier digested; and in the warm seasons of

the year, or at times that suit, they are employed in fishing, and live mostly on them; but their way of eating them partly fresh does not stimulate the blood as they do with us. Although a great deal of our continent abounds with salt springs, yet I cannot find that the Indians ever used salt in their diet until they were instructed to do so by the Europeans. As animal food is not much stimulating without salt, consequently the body of their diet is not calculated to stimulate and inflame the blood as ours is, when we make use of animal food seasoned high with salt, pepper, and the like. And they have not such a mixture of diet as we have: and if there is an inflammation on the outside of the body, they apply something as simple as a poultice of pounded balsam, or elder leaves, or the bark. If it is of a poisonous nature, a poultice of pounded wild celandine, or what some call touch-me-not; and in each case occasionally bathe the part in cold water. If such means does not cure, different ways are taken to burn the place, some by holding it near the fire, or by pouring hot ashes on it, or holding a piece of spunk on the place while it is burning, and thus call it a burn, and then put a poultice, something as simple as slippery elm bark; or if it inflames, bathe it repeatedly in cold water. They preserve their meats from putrefaction by cutting it into small pieces and exposing it to the sun in summer, and in the winter to frost; in one case it is dried, and in the other it is so frozen that it cannot putrify. In dressing their meats they are careful to preserve their juices. They generally prefer it in soups, therefore the use of the spoon preceded that of the knife and fork. They take the same pains to preserve the juices of their meat when they roast it; they turn it often, and not crowding it near the fire, but having it at such a distance off that a person not acquainted with the nature of it would suppose that it would not roast or cook at all. This brings me in mind of the many nights that we spent together during the last war; for an Indian would frequently roast my meat along with his, and for this purpose he would cut him a stick with not less than three forks, on which he would stick the meat, and set it at a proper distance from the fire, and in the course of the night he would have it cooked in the tenderest manner; and though I would see the process, yet I could not do it as well as himself: in this way they preserve the juices. The efficacy of this animal juice in dissolving substances in the stomach has not been equaled by any of those soups or liquors which modern luxury has mixed for that purpose. The Indians have no set time for eating, but obey the call of their appetite. After days spent in the chace or in war, they are apt to commit excesses in eating: it is common to see them spend several hours in satisfying their hunger. This is occasioned not so much on the account of the quantity they eat, as it is by the pains they take in chewing it. In this way they are brought to ma-

hunty and thus live, their constitutions thus prepared to stand the inclemency of the weather. The customs peculiar to the men consist chiefly in such employments as are necessary to preserve life and defend their nation. These employments are hunting, fishing, and war, each of which are conducted in a manner that tend to call forth every fibre and part of the body into exercise, and these means preserve health by rousing the blood into circulation; so it flows to the extreme parts of the body, and thus discharges the water and matter from it. Though these are rough means, yet they generally have a good effect. We proved the effect of such means while we were spies: we travelled frequently day and night through all kinds of weather, and frequently lay out, without fire, the coldest nights in winter, and yet the army were more sickly than we were.

In the time of plenty and peace, in war, and more especially in victory, we see Indians rise into exercise and strike a dance, having little bells or beeds to their ankles, and instruments in their hands to make a noise, and parade round the fires in winter, and in summer round other objects, perhaps poles set upon forks, over which they make motions, as though they would tomahawk or scalp one another, and try their activity to see how near they can strike at one another's head, and still miss it; and every few rounds round the fire, they generally raise a shout, and thus set the blood in a high state of circulation. We are told that they display their manhood and strength of mind by keeping at a distance from the female sex, or not acknowledging they care any thing about them when they are with them; and when they see proper to marry, which is not commonly till they are thirty years of age, they have but little to say on the subject till the business is completed. They act partly like the Jews of old, they take themselves wives; by this means they avoid in a degree the effects of love which have buried many in difficulties, distress, and death. We can discover that they are not accustomed to complain when injured either in body or mind; and though the child is tied to a board, and it set up against a tree for hours at a time, it scarcely complains, and this is the case with them when they come to years of maturity and old age—this is an advantage to their health. One custom peculiar to all savage nations, is to impose heavy burdens upon their wives, and indeed on all their females. The female does principally all their drudgery and domestic labors; this gives a firmness to their bodies and strength to their constitutions. We are told that their mends seldom begin to flow before they are eighteen years of age, and generally cease before they are forty; they have them in small quantities, but at regular intervals—they seldom marry till they are above twenty. When marriages are unfruitful, which is seldom the case, a separation is obtained by means of an easy divorce; so that they are unacquainted with the disquietude which

sometimes arise from barrenness. During pregnancy the women are excused from the more laborious parts of their labor, hence miscarriages rarely happen among them. Nature is their only midwife; their labors are short, and accompanied with little pain. Each woman is delivered in a private cabin, without so much as one of her own sex to attend her; and after washing herself in cold water, she returns in a few days to her usual employment, so that she knows nothing of those accidents which arise from delicacy, being shut up in a warm room for a month or two, which prepares the system to be tender and to take cold. It is remarkable that there is hardly a time or period between their marriage and the cessation of the menses in which they are not pregnant or giving suck. This is the most natural state of the constitution during that interval, and hence we often find it connected with the best state of health in the women of civilized nations. Here I will remark, that the savage women keep a steady exercise, but not to extremes, during pregnancy, which keeps the muscles and cords pliable and willing to give way when nature shall demand these things. But in women who set still, and the blood becomes thick, the muscles and cords become partially set, and sometimes break before they will give way, or burst parts of the flesh: so it is necessary that women live on a moderate, weak diet, and keep regular exercise, during pregnancy. Another custom which is common with the male, and sometimes attended to by the female—that of painting in the southern climates. It is said they use grease with a kind of yellow stone, which is of rather a deeper color than their skin, to stop excessive perspiration; but the northern Indians generally use the stone or clay, and paint their foreheads and cheeks either all over or in streaks, which makes them look more savage than they otherwise would look. They are not subject to so many passions, which disorder the body, as we are; anger is in a measure concealed and buried—envy and ambition are in a measure excluded. As love is one of our passions, the Indian is guarded against it. "The weakness of love," says one "which is so much indulged in, in ages of humanity and politeness, is regarded among savages as the most unpardonable weakness or loose pleasure." A young man would think himself disgraced forever if he showed the least preference of one woman above another, or did not express the most complete indifference both as to the time when, and the person to whom, he was to be married. Thus are they exempt from the violent and lasting diseases which accompany the several stages of such passions in both sex among civilized nations. I hinted above, that Indian's diet did not stimulate the blood as that of the whites, who live in luxuries and use salt in their diet. Here we have to remark, that since they became acquainted with the Europeans, they have become acquainted with spirits, and some of

them appear to be fond of it and use it to excess. Having made some remarks on the physical customs of the Indians, we shall proceed now to inquire into their diseases, or the causes that produce diseases among them. The custom among the Indians of sleeping in the open air in the different climates, and the effect of heat and cold upon their bodies, to which the warmth of their cabins expose them; their long marches, excessive exercise; their intemperance in eating, to which their long fasting and their public feasts naturally prompt them; and, lastly, their habitations being most commonly near the bank of some stream of water. These things make them subject to fevers, pluerisies, and rhuematisms; these, with the dysentary, constitute the greater part of their diseases, though they are subject to being poisoned both externally and internally. The small pox and the venerial diseases were communicated to the Indians in North America by the Europeans, nor can I find they were subject to them before. They are seldom affected with the gout or scurvy, or any sedentary complaint, though they live a great deal on animal food, but are still in a degree exempt from salt; and those among them who drink to excess, do it more by spells, and are not accustomed to take it regularly or habitually from childhood. And as madness and craziness come in general from a fomentation of the blood, the Indians experience very little of it. The Indians make but a very small account of worms; they consider that they are natural or common to the body, and only operate with other diseases, though most animals are affected with them at certain times. But I am fully convinced that one half of the complaints that are charged to worms, are really some other disorder; and the Indians appear to be but little affected with diseases and pains in the teeth. All the reason I could ascribe for it, is that they go with the top of their head naked, and are hardened to the inclemency of the weather, and do not take cold in the teeth, neither do their children suffer in cutting teeth like some of ours. Their practice subjects them to many accidents, such as wounds, and broken limbs, and bruises. This brings me in mind of a circumstance that took place when we were spying together, and there being but a small company of us, we were all the time in danger of being attacked by the enemy, both by the Indians and the British; for this reason we were not allowed to talk or shoot after we got a few miles from camp, lest we should be found out, but march in silent order from eight to fourteen days at a time, and all the conversation was done by whispering to one another at a certain time. In one of our silent marches, along a narrow path, in single file, on the waters of Branch's Fork of Oglais, we discovered a large bear a few yards from us, with his head in a hollow stump; and being on the opposite side of the stump from us, and did not discover us, but was digging in the stump, which

our pet Indians discovered, and knowing that they were not allowed to shoot, they layed down their guns and blankets, took their tomahawks in their hands, and made secretly to the stump; and as they were preparing to strike round the stump, the bear pulled out his head suddenly and took off, with the Indians close on his heels, for forty rods at least. This was not the only case in which they were exposed to danger. But I found they were very willing to climb trees for raccoons and the like, even into the top of the highest trees. But the most fatal danger that they are exposed to, is that of war. They are divided into many parties, and subdivided, and are so apt to war with one another, as well as with other nations. By these means they subject themselves to a number of wounds, as well as a general declention among them. Having thus pointed out their natural diseases, I will make a few remarks on their remedies, which are simple and few in number. We find that in every nation they encourage the practice of physicians, and attend on their sick with success in a general point of view. In case of fevers, which constitute almost half of their disorders, they get some simple roots or herbs that they conclude will assist in curing the complaint, and generally make a tea of it, and drink it freely and sweat. They differ as to what roots they make use of; some make use of Robbin's plantain root and tops alone; some the Indian turnip; some the cohush roots, though they are apt to mix several together, such as spice bush bark, angelico, cobush, Robbin's plantain, &c. In one case I understood the Indian doctor mixed Robbin's plantain, cohush, Indian turnip, and wild ginger; though it is probable they have many others, such as the black snake root and the like. These likely are the most common medicines for fevers of every kind, as they treat them nearly alike, except low, stagnated fevers, for which, possibly, they may use hotter medicines than they do for others, such as Indian turnip, henpepper, or prickly ash bark, though I am not fully satisfied that it is the case. But one thing is quite certain, that is, that they make use of a cold bath in these fevers, after which the patient is wrapped up in bed, and goes through a sweat by drinking his teas. The Indian form of sweating in general, which is used for a variety of complaints, is as follows: the patient is placed in a close tent or wigwam, over a hole in the earth, in which a hot stone is placed, and water is gradually thrown upon this stone, which involves the patient in a cloud of vapor; this, with his drinking only of his teas, involves him in a free sweat. In this situation he rushes out and plunges himself into the water, from whence he retires to his bed, covers warm, drinks his teas, and sweats. Several such trials as this seldom fails in curing in a few days. Their diet is fresh in general, and if the stomach is partly empty during the time, is nearly all the directions that are wanting.

As the cohush is an Indian name, and I do not know the English name of this herb, it is necessary to describe it, that the reader may know how to find it. It is a weed that has some appearance of the rattle root, and often grows in the same kind of soil; it grows near two feet high, and about the month of July has a kind of bloish green balls on the top, near as large as the end of a man's finger; the roots are what are used. It branches very much, and is near the size of a small wheat straw when it starts from the main root.

Though the above cures are somewhat odd and rough, yet I have a favorable opinion of them from the good effect I have heard of it, but have never practised them, and have not proved the virtues of the medicines they in general make use of. But the greatest scarecrow is going out of a sweat and plunging into cold water; though it may look dangerous, yet I am convinced there is no danger in it, provided the patient is thrown into a free sweat afterwards.

In dysentary, the rule is to give a tea of wild cherry bark, puccoon root and parsimmon bark. Whether they make use of the yellow puccoon root or not, is a doubt with me; but the sort I heard of was the red puccoon root—I once heard of crowfoot being made use of in this way. I once talked with a man who was cured of this disease by an Indian, and he stated that his diet was fresh fish; that salt was forbidden, and that he recovered immediately, though he had been very bad.

Consumptions.—The rule is to make a tea of mountain sarsaparilla root and yellow puccoon root, and drinking some of this tea twice a day and sweat once a day till they get partly well. I was told that an Indian undertook to cure a white man of the consumption, and sweat him once a day for three months. The diet should be fresh and light, and the patient stir as much as possible.

The rule of taking medicine for every complaint, is to begin with a small quantity at first, and increase as the constitution will bear, until the patient takes a considerable portion at a time. Though they are like our own physicians, differing both in medicine and management, even in the same climate; but the substance is nearly the same as to our northern Indians, except Richard Carter, of Kentucky, who has a plan that is different. They but seldom purge, and the means made use of are rattle root, epicuana, and boneset; though the latter sometimes purges, but commonly pukes. They commonly take them in teas, beginning with a small dose, and increase till it operates—make use of fresh broths with them.

I do not find that the Indians ever have their feet frozen, their mockasins allowing their feet to move freely, and thereby promoting the circulation of the blood; this preserves their feet in the day time, and their practice of sleeping with their feet towards the fire, answers the purpose at night; and when the feet do not keep warm

enough, they are stript and held a short time in cold water, and then put on their mockasins and stir themselves again, which generally answers the purpose intended.

Some have thought that Indians could regulate the urine: the common medicine for it is angelico root, chewed and swallowed, though some may make use of agramona root for the same.

Some have thought that Indians could destroy poison or the effect of it in the body. I suppose that their manner of doctoring in general, that is, to cause a free perspiration, has some effect in that way; but the means they make use of I have not tried sufficiently to know whether they will answer the purpose or not: one is rattle snakes' master, though the principal one is wild celandine, or what some call touch-me-not, that is, the tops pounded and applied outwardly, or made into tea and taken inwardly. I understand that some are very superstitious about the last-mentioned herb, and have even said that snakes cure themselves when bitten, by eating it. I heard tell of an Indian doctor who made use of a weed called the king-of-poison, that is the root of it. I suppose that when applied outwardly, it was pounded; or, if inwardly, made into tea and drank, though these means in general might be powdered and administered either outwardly or inwardly in that way.

A great deal has been said about Indians curing stiff joints, and bringing persons' limbs into use that have been useless for a long time, by infusions of herbs or roots in warm water; and others, by greasing the part with a certain kind of grease. It is worthy of notice, that there are many joints and limbs that become stiff or useless for want of the pores being kept open, and sometimes the matter part of the blood lodges in that part; and whatever tends to open the pores or dissolve and circulate this thick substance, is apt to bring the limb into use. The most common things that this solution is to be made out of, is Indian turnip, henpepper, or weak lie. The part ought to be bathed in this infusion as warm as possible, half an hour at a time, twice a day, for two weeks at least, if the case requires, and be wrapped up warm through the intervals, and stir as much as possible, so as to keep the blood circulating; and if the patient is not able to stir about, the part ought to be severely rubbed as often as convenient; and if we grease with oil, the best kind of oils that I know of, are rattle-snake's, bear's, pole-cat's, and red worm's oil. A person should grease with these twice a week for several weeks, and keep the part unusually warm, and exercise as much as possible, that the blood may circulate freely. The diet should be weak and fresh during the time of either of these processes; though some have bathed the part in cold water, and afterwards wrapped it up warm at each interval, and so have kept the same directions as above.

The way to make the red worm oil:—Put a number of worms in a vial or bottle, and hang it near the fire, so as to keep it a little more than blood warm.

Dr. Rush gives an account of Indians aiding nature in delivering a woman of her child, and of an Indian woman in a difficult labor being suddenly delivered in consequence of a general convulsion imposed upon the system by stopping for a short time her mouth and nose, so as to obstruct her breath.

A great deal has been said about Indians curing the dropsy in the body:—The rule is to take sumac, the bark of the root, or parsimmon bark, make a tea of them; but if any person should use the sumac, they ought to be careful to use the sort that has a smooth bark, as the other is poison. The patient ought to use a small quantity of this tea twice a day, and keep the stomach very empty, and go through a cold bath once a day till the disease abates.

Dropsy in the blood:—Make a tea of the yellow sarsaparilla and cohush, and drink some of this tea twice a day, and make use of the cold bath once a day, and live on very low diet, or keep the stomach very empty until the disease abates.

Bruises, which are common among the Indians:—Bathe the part in cold water half an hour, and draw blood from as near the place as is convenient, and poultice with pounded balsam.

The Indians are not plagued with stagnations of blood as we are; their long fasting tends to brace them against this disease, in giving nature time to discharge herself, and their severe exercise circulates the blood so freely, that it is another brace against the same complaint.

They are seldom plagued with the scald head or scurvey complaints, for this reason, they are ignorant about doctoring them, and probably would doctor them like they do some that will not be cured other ways, that is, to burn them out with a kind of costic, and doctor them as for burns.

Rheumatisms are treated like fevers in some cases, and others like stiff joints and limbs that have been mentioned.

Pleurisies are treated like fevers in some cases.

It is common for Indians to administer a cold bath in a number of cases of relaxation, consumption, fits and stagnated complaints, that is, among white people, as they have but few among themselves, and especially where the patient becomes stupid, as well as to their children, and even in old age; but their manner of administering it terminates in a free sweat, by covering up warm afterwards, and drinking warm teas freely.

OF THE PULSE.

The pulse is nothing more than the beating of an artery. Every

time the heart contracts, a portion of blood is forced into the arteries, which dilate or swell to let it pass, and then immediately regain their former size, until by a second stroke of the same organ, a fresh column of blood is pushed through them, when a similar action is repeated. The swelling and contracting of the arteries then constitutes the pulse, and consequently it may be found in every part of the body where those vessels run near enough to the surface to be felt. Physicians look for it at the wrist, from motives of convenience.

"The strength and velocity of the pulse vary much in different persons, and even in a state of perfect health. It is much quicker in children than in adults; and in old men, it grows more slow and feeble, owing to the decreased energy of the heart. The pulse is increased both in strength and velocity by running, walking, riding, and jumping; by eating, drinking, singing, speaking, and by joy, anger, &c. It is diminished in like manner, by fear, want of nourishment, melancholy, excessive evacuations, or whatever tends to debilitate the system.

"In feeling the pulse, then, in sick persons, allowance should be made for these causes, or what is better, we should wait until their temporary effects have ceased.

"A full, tense and strong pulse, is when the artery swells boldly under the finger, and resists its pressure more or less; if, in addition to this, the pulsation be very rapid, it is called quick, full, and strong; if slow, the contrary.

"A hard, corded pulse, is that in which the artery feels like the string of a violin, or a piece of tightened cat-gut, giving considerable resistance to the pressure of the finger.

"The soft and intermitting pulses, are easily known by their names. In cases of extreme debility, on the approach of death, and in some particular diseases, the artery vibrates under the finger like a thread.

"In feeling the pulse, three or four fingers should be laid on it at once. The most convenient spot to do this, as already mentioned, is the wrist, but it can be readily done in the temple, just before, and close to the ear, in the bend of the arm, at the under part of the lower end of the thigh, among the hamstrings, and on the top of the foot.

"There are two kinds of blood-vessels in the human body: arteries and veins. The arteries carry the blood from the heart to the extremities of the body, where they are connected with the veins which bring it back again. An artery pulsates or beats; a vein does not.

"MEDICINES.

"*General Rules for Treating Diseases.*

"*Rule* 1.—In every complaint, whatever it may be called, if

you find the pulse quick, hard, full, and strong,—the head ache,—tongue foul,—skin hot, or those marks which denote it of an inflammatory nature, remember the plan is to reduce it.

"*Rule* 2.—If on the contrary, the pulse be small, soft, feeble, and intermitting,—the tongue dark, and great debility or weakness is evident, reverse the whole plan.

"It is necessary, however, to be careful in distinguishing the weakness which is here meant, from that state of debility which arises from excessive action, from the stuffing up of the vessels, and which requires the lancet. As a mistake might prove fatal, attention should be paid to the pulse, by which they can be easily known. In that state which requires tonics, the pulse is small, soft—sometimes like a thread and quick. In the other, it is slower and full, giving considerable resistance to the pressure of the finger.

"*Rule* 3.—If in addition to those symptoms mentioned in the second rule, the tongue be covered with a black coat,—foul dark looking sores from about the gums and insides of the cheeks,—the breath be offensive, &c. the same class of remedies is to be vigorously employed.

"*Rule* 4.—Severe local pains, as in the head, side, &c. require the use of the lancet, &c. &c.

"*Rule* 5.—Incessant and earnest intreaties on the part of the sick, for, or longing after, any particular article of diet, if steadily persevered in, whether the use of it agrees or not with our pre-conceived ideas on the subject.

"*Rule* 6.—In all fevers, where the pulse is quick, full and strong, —the skin burning to the touch, and there is no perspiration, dash cold water over the head and shoulders of the patient, wipe him dry and put him to bed. If in consequence of this, a chill be experienced, and the pulse sink, give warm wine, &c. and omit the water for the future. Should a pleasant glow, over the whole frame, follow the affusion, and the patient feel relieved by it, repeat it as often as may be necessary.

"*Rule* 7.—Observe carefully, the effects of various articles of food, as well as physic, upon your own body, and choose those which experience proves to agree best with you. It is a vulgar but true saying, 'What is one man's meat is another's poison.'

"*Rule* 8.—Keep a sick room always well ventilated. Plenty of fresh air is an important remedial agent in all diseases.

"It is not meant by this that the patient should be exposed to a direct current of air, which should be always avoided by well and sick."

"CASTOR OIL.

"This is either imported from the West Indies, where it is obtained by decoction with water, 10 lbs. of seeds yielding 1 lb. of oil; or

from the East Indies, where it is obtained by grinding in a mortar with a hole in the side for the supernatant oil to run off, being in common use there for lamp oil. Or, that made at home by the press, which is the best, especially some that is prepared from cold blanched seeds, with the eye taken out. Some chemists are said to take out the color from the foreign oils, by certain additions, and sell them for English, or, as it is called, cold drawn castor oil. The virosity communicated to the oil by the eyes of the seeds may be got rid of by washing the oil with boiling water, or with weak oil of vitriol. It is soluble in warm spirit of wine, and its adulteration may thus be discovered, if thought necessary; but as all the fat oils have nearly similar qualities, the taste is sufficient for practical purposes. It is purgative in doses from 1-2 an oz. to 1 1-2 oz. floated on some distilled water, or on wine; or if it does not usually stay well on the stomach, on some tincture of senna; or made into an emulsion with yolk of egg, and a little distilled water, with 20 drops of lavender, and a tea-spoonful of simple syrup; it may also be used in clysters. It is particularly useful where a stimulant would be hurtful; as it operates quickly without disturbing the system; also externally in swelling pains. Contrary to most medicines, on frequent repetition a less dose is sufficient."

"CHICKEN-POX.

"*Symptoms.*—Fever, inability to sleep, pain in different parts of body, a crop of small pimples or points on the back, which, by the second day, are changed into little blisters, which are ripe on the third, and disappear before the fifth day, without forming true pus or matter, and leaving no marks or pits behind them.

"Distinguish it from small-pox, by the eruption coming out on the back, by the mildness of the fever, by the fluid contained in the vecicles or blisters not being true pus, and by the whole falling off in scales on the fifth day.

"*Treatment.*—Confine the patient to his bed, keep him cool and quiet, and give him a dose of salts. This is all that is necessary."

"COW-POX.

"*Symptoms.*—A pimple at the spot where the matter was inserted, which gradually undergoes certain regular changes, that characterize the complaint.

"*Changes of genuine Cow-Pox.*—On the second day, or sooner, from the time of the operation, a small speck of inflammation is to be perceived, which, on the fourth day, is a pimple, surrounded by a circle of inflammation. On the fifth, this pimple changes to a vesicle containing a thin fluid. On the sixth, this vesicle is more perfect, its margin forming a regular circle; it is also a little flattened

on the top, the centre of which is of a dark color. On the eighth or ninth day, slight chills, flushes of heat, &c. are sometimes felt, accompanied by swelling of the pustule, and pains shooting up into the arm pit, the glands or kernels of which occasionally swell.

"On the tenth or eleventh day, the pustule is surrounded by a circular, vivid, inflammatory blush that is very beautiful. This is regarded as a decisive proof of the presence of the genuine cow-pox. On the eleventh day, the centre of the pustule begins to grow of a dark color, which gradually increases to a brown or mahogany one by the end of the second week, when it begins to leave the skin, from which it is finally separated.

"*Treatment.*—If the pain, inflammation, and swelling, are excessive, reduce them by cold applications, &c."

"SMALL-POX.

"*Symptoms.*—Inflammatory fever, drowsiness, pain in the pit of the stomach, increased by pressure, pain in the back, vomiting, on the third day the eruption breaks out on the face, neck, and breast, in little red points that look like flea-bites, and which gradually appear over the whole body. On the fifth day, little round vesicles, filled with a transparent fluid, appear on the top of each pimple. The eruptive fever now declines. On the ninth day the pustules are perfectly formed, being round and filled with a thick, yellow matter, the head and face also swelling considerably. On the eleventh day, the matter in the pustules is of a dark yellow color, the head grows less, while the feet and hands begin to swell The secondary fever now makes its appearance. The pustules break and dry up in scabs and crusts, which at last fall off, leaving pits, which sufficiently mark the cause.

"Such are the symptoms of the distinct or mild small-pox, but it frequently assumes a more terrible shape, in what is called the confluent. In the latter, all the symptoms are more violent from the beginning. The fever is a typhus, there is delirium, preceded by great anxiety, heat, thirst, vomiting, &c. The eruption is irregular, coming out on the second day in patches, the vesicles of which are flatted in, neither does the matter they contain turn to a yellow, but to a brown color. Instead of the fever going off on the appearance of the eruption, it is increased after the fifth day, and continues throughout the complaint. The face swells in a frightful manner, so as to close the eyes; sometimes putrid symptoms prevail from the commencement.

"*Treatment.*—Place the patient in a cool airy room, and let him be but lightly covered with bed clothes. Purge him every other day with salts, and give him thirty drops of laudanum every night. If from any cause the eruption strikes in, put him into the warm bath,

give a little warm wine whey, or the wine alone, and apply blisters to the feet. Obstinate vomiting is to be quieted by the effervescing draught, with the addition of thirty drops of laudanum.

"In the confluent small-pox, the treatment must be varied as it inclines more or less to the inflammatory or putrid type. If it inclines to the first, act as directed for the distinct kind, if to the last, employ all those means directed in putrid fever. If the eyes are much affected, it will be necessary to bathe them frequently with warm milk, and to smear the lids with some simple ointment."

PILES.

"*Symptoms.*—A pain in the fundament when going to stool; on examination small tumors are perceived to project beyond its verge. They are of two kinds, the blind and bleeding. They may also be internal and external.

"*Blind Piles.*

"*Treatment.*—A diet of rye mush and milk, strictly adhered to for a length of time, will very frequently cure the disease. If they project, are swelled, and painful, apply twenty or thirty leeches to them, and cold applications. The common gall ointment is a very soothing application. Balsam copaiva, in doses sufficiently large to purge freely, is also highly recommended. A radical cure, however, is only to be sought for in the knife or ligature, for which apply to a surgeon. If the pain is very great, laudanum may be taken to ease it.

"*Bleeding Piles.*

"*Treatment.*—If the bleeding is considerable, inject a solution of alum or a decoction of oak bark, or make pressure upon the vessels by introducing a sheep's gut, tied at one end into the fundament, and then filling it with any astringent fluid by a clyster pipe. This evacuation is sometimes salutary, and it often requires much judgment to know whether it could be stopt or not."

"DIRECTIONS FOR BLEEDING.

"Tie up the arm, placing the bandage at least two inches above the projection of the elbow joint, and then feel for the pulse at the wrist. If it is stopped, the bandage is too tight, and must be relaxed. Select the most prominent vein, and feel with the tip of the finger if an artery lies near it. If you feel one pulsation so close to the vein that you are fearful of wounding it, choose another. Having set your lancet, (I allude of course to the spring lancet, the only one that can be used with safety,) bend the arm in the precise position it is to be kept in while the blood flows. The cutting edge of the lancet is now to be placed on the vein, while you depress the handle or frame just as much as you wish the cut to be deep; by touching

the spring on the side with your thumb, the business is done. To stop the bleeding, relax the bandage, press the two edges of the wound together, place a little compress of linen on it, and bind up the whole with a bandage passing round the joint in a figure of eight."

"DISTILLATION.

"The object of distillation is the preparation of alcohol or pure spirit, which is obtained from brandy, rum, arrack, and whiskey, prepared from wine, sugar, rice, and malt. It also includes compound spirits, or those which, in addition to alcohol, contain some volatile or pungent oil or essence,—as gin, hollands, caraway, and peppermint; the essential oils, as oil of cinnamon, oil of cloves, oil of peppermint, and otto of roses; and the simple distilled waters; which retain the fragrant flavor of the particular herbs with which they have been distilled.

"*To manage Distillation.*

"Previous to distilling, the processes of brewing and fermentation are necessary. In distilling, there is only one general rule, namely, to let the heat, in all cases, be as gentle as possible. A water-bath, if sufficiently large, is preferable to any other mode, and will perform the operation with all the dispatch requisite for the most extensive business. The spirit as it first comes over, should be received into a quantity of cold water; as, by this means, the connexion between it and the oily matter will be considerably lessened. For the same reason, after it has been once rectified in the water-bath, it should be again mixed with an equal quantity of water, and distilled a second time. After the spirit has been distilled once or twice in this manner, from water, it may be distilled in a water-bath without any addition; and this last rectification will free it from the greater part of the water it may contain.

"In distilling compound spirits, a small still has been found to answer better than a large one.

"*Utensils.*

"In a distillery are required a variety of utensils, such as a still, worm-tub, pump, a water-cask, a strong press, hair-cloths, three or four iron-bound tubs, capable of containing from a hogshead to a pipe, of any liquor; three or four cans, capable of holding from two to six gallons by measure, an iron-bound wooden funnel, having a strong iron nosel, or pipe; a pewter syphon, about six feet and a half long, and four inches in circumference; flannel bags, for refining the thick and feculent matter at the bottom of the casks and other vessels.

"*Operation of the Still.*

"When the still is charged, let the fire under it be lighted; and whilst it burns up, the joints should be carefully luted.

"By laying the hand on the still and capital, as the fire gains strength, the process of the operation will be ascertained; for, whenever the head, or capital, feels hot, it is a proof that the volatile particles have arisen, and are about to enter the worm. When the still head is about to become hot, prepare a *damp*, made of the ashes under the grate, mixed with as much water as will properly wet them. This mixture is to be thrown upon the fire, to moderate its action, at the instant when distillation has commenced. Continue the heat as long as the distilled liquid is spirituous to the taste. When the distilled liquor carries with it any particular flavor, it should be re-distilled with essential oils, in order to convert it into a compound spirit, as gin, peppermint, and other cordials.

"When all the spirituous fluid is drawn off, the still should be emptied by a cock in the side. The head, &c. should then be removed, and the several lutes taken clean off. The still may now be charged a second time, and luted. If the spirit, or compound to be made, is of a different nature or flavor from that procured by the last distillation, the still, capital, and worm should be thoroughly cleansed by hot water, sand, and a scrubbing brush, to remove the oily particles which adhere to their internal surfaces. The worm is best cleansed by passing hot water through it repeatedly, until the water flows out quite flavorless.

"Great care should be taken that no grease, tallow, soap, or any other unctuous matter, fall into the tubs, pieces, rundlets, or cans. Above all things, lighted candles, torches, or papers, should not be brought near any vessel containing spirits. The flue or chimney should be kept constantly clean.

"*To use a Portable Furnace.*

"In the laboratories of experimental chemists, portable furnaces are employed. Charcoal is the only fuel that can be used in them, except the occasional use of the finer kinds of stone coal that yield a bright flame, and burn to a white ash without forming clinkers. When the fire is regulated by the admission of only the necessary quantity of air through the charcoal, and the whole heat of the fuel is directed upon the subject exposed to it, the expense is not so great as might be supposed, for no other fuel gives out so much heat. One lb. of charcoal will boil away 13 lbs. of water, whereas the same weight of Newcastle coal will boil away only 8 or 9 lbs. A pound of coke will only boil away 4 lbs. of water, and a pound of peat seldom more than 5 lbs. or by a skilful mode of using it at the utmost 10 lbs.

"*To Build Fixed Furnaces.*

"Windsor bricks are generally used, as they may be cut as easily as chalk, and yet bear a violent heat without alteration; they must be set in clay of the same field. The parts distant from the fire

may be of common brick set in mortar, but this mortar must be carefully removed before the other part is begun, as an accidental admixture of it with the clay would cause the latter to run into glass, and thus spoil the furnace. These furnaces are generally built as thin as possible that they may take up the less room, and to save fuel in heating them, as they have seldom fire constantly in them; in this case, they should be surrounded with iron braces, to prevent the alternate contraction and expansion destroying them as soon as they otherwise would.

"*To make a Portable Sand-Pot.*

"For a portable one, the ash pit may be an iron cylender, 17 inches in diameter and 8 deep, closed at bottom. In the front is cut a hole 3 inches high and 4 wide, with sliders to shut close. Three pins are rivetted on the inside about an inch below the upper edge; these are to support the fire-place. The bottom of this ash pit is lined with clay, beat up with charcoal dust and formed into a kind of saucer. The fire-place is a small cylinder of nearly the same width, so as to fit easily into the top of the ash pit, and rest on the three pins; its heigbt is 15 inches, and it has a flat border at each end, leaving a circular opening of 10 inches in diameter. Around the lower border are riveted three screws, to which are fixed, by nuts, a grate. In the upper border, towards the circumference, and at equal distances from each other, are made four circular holes an inch over. The inside of the fire-place is lined with clay and charcoal, whose surface is adjusted to a core, made by drawing on a board an ellipsis, having its foci 15 inches asunder, and its semiordinates at the foci 5 inches, sawing off the board at each focus, and also down the greatest diameter, so that the internal cavity may represent an ellipsoid of those dimensions, cut off at the foci. A fire-hole about 6 inches wide and 4 inches and a half high, with the lower limit about 3 inches above the grate, is left in the front to be closed with a lined stopper; both the fire-hole and stopper having a border to retain the lining. When the lining is dry, four openings are cut sloping through it, corresponding to the openings in the upper border, to serve as vents for the burnt air, and to regulate the fire by sliding pieces of tile more or less over them. In the central opening at the top of the fire-place is hung a cast-iron pot, either hemispherical, or, which is most usual, cylindrical, about 6 inches deep at the edge, with a rounded bottom, so that the axis is about an inch deeper. The common pots have only a reflected border by which they hang; but the best kind have also an upright edge that rises an inch higher, to which a stone-ware head is fitted; and thus the pot serves for many distillations that require a strong fire. It is usual to cut a notch on one side of the top of the fire-place, sloping upwards to the edge of the pot, about 3 inches wide and 2 deep, to

admit a low retort to be sunk deeper into the pot, by allowing a passage to its neck.

"*To make a Sand-heat Furnace.*

"A furnace of this kind may be stationary, and built of bricks that will stand the fire: and in this case, the ash pit is built about 12 inches high, and has an ash-door opening into it about 6 inches square; a grate is then laid, and a fire-door 6 inches by 8 opens immediately into the fire-place, even with the grate. The fire-place is made cylindrical, 2 inches wider than the sand pot, and about 8 inches deeper; the grate being a square whose side is about two-thirds the internal diameter of the sand-pot. This pot hangs by its border in an iron ring placed at the top of the furnace; we have not yet adopted Teichmeyer's method of sloping the pot. As stone coal is generally used in fixing furnaces, instead of the 4 register holes used as vents in the portable furnace, only one opening, about as wide as the grate, and 3 inches high, either in the back or on one side, is made to vent the burned air into the chimney. This, however, has the inconveniency of heating the pot unequally, the side next the vent becoming much the hottest, in spite of the endeavor to equalize the heat by bringing the fire from under the centre of the pot as forward as possible, by raising the wall opposite to the vent perpendicularly, and enlarging it only on the other three sides; sometimes with the same view, several small vents are made round the pot, leading into the chimney. A notch for the neck of the retort is generally made on one side. As much heat passes through the vent, it is usual to cause the heated air to pass under a large cast-iron plate, placed on a border of bricks surrounding a platform of the same materials, and leaving a cavity of about 2 inches and a half deep, at the further end of which, another opening leads into the chimney. On this iron plate, sand is laid to form a sand heat, and thus several operations are carried on at the same time. If that in the sand-pot is finished, and it is desired to keep on those in the sand-heat without interruption, the vessel may be drawn out of the sand, some warm sand may be thrown on that remaining in the pot, and a fresh vessel with materials introduced. But if this new operation should require the heat to be more gradually exhibited, a pot of thin plate iron, filled with cold sand, containing the vessel, may be partly slid into the heated sand-pot, and, being supported by pieces of brick placed under the edge or otherwise, kept there until it be necessary to increase the heat, when it may be slid down lower until at length it is permitted to reach the bottom of the sand-pot.

"*To make a Hot Still.*

"Portable hot stills should have an ash pit and fire-place exactly similar in dimensions to those used with the sand-pot, or the same

furnace may be used with a hot still, if economy and not convenience is the principal object. The copper or tin plate cucurbite will, of course, be 10 inches wide, and about 12 deep, and hang 7 inches within the fire-place. The mouth should be wide, that the water-bath to be occasionally hung within it so as to reach within 3 inches of the bottom may be the larger. Between this wide neck and the circumference there should be a short pipe, through which the liquor left after distillation may be drawn off by a crane without unluting the vessels; fresh liquor added; or, in distilling with the water-bath, the steam may escape. This pipe has a ring round it, that the cork with which it is stopped may be firmly tied down, and like the other joinings be luted; for which purpose slips of paper smeared with flour and water, or common paste, are usually esteemed sufficient; but the best material is bladders rotted in water until they smell extremely offensive and adhere to the fingers when touched, and then worked between the hands into rolls, which are to be applied to the joinings. These small stills have usually a Moor's head that fits both the cucurbite and the water-bath, their necks being of equal diameter, and is furnished with a groove round the lower part on the inside to direct the condensed vapor to the nose of the alembick; and this head is surrounded by a refrigeratory containing cold water, which is not so cumbersome as, and less expensive than a worm and tub. But the most advantageous way of cooling the vapors is to use a Moor's head without a surrounding refrigeratory, or only a plain bent tube, which should be at least 18 inches long, that the small globules of the boiling liquor which are thrown up near a foot high, should not pass over, and render the distilled liquor unfit for keeping. To this is to be adapted a pewter pipe, about 8 feet long if spirit of wine is to be distilled; or shorter for watery liquors; and in both cases 3-4 of an inch in diameter on the inside, inclosed in a tinned plate tube with a funnel. With an adopter of this kind, and the consumption of a pint and a half of water in a minute, or about 9 gallons in an hour, spirit of wine may be distilled at the rate of a gallon by the hour, from one of these portable stills. Another convenience of these straight pipes is, that they may be cleansed in the same manner as a fowling piece.

"*To make a Large Still.*

"If this furnace is fixed, and made of bricks, it may be constructed with a sand heat like that annexed to the sand-pot: but this is seldom practised, although it would be advantageous for digestions and evaporations with a gentle heat, because the fire is generally kept up at an even height. If the cucurbite is not wanted for distilling, it may be used as a boiler to keep water ready heated for use, and to be drawn off when wanted by a cyphon or crane. But these fixed stills are usually furnished with a pipe and cock on a level

with the bottom, by which they can be emptied, and have almost always a worm and tub to cool the vapors; the head is usually of that kind which is called a swan's neck.

"*Astier's Improved Still.*

"It has been proved that as soon as a common still is in operation, the steam from the capital in the first turn of the worm is at a temperature of 80°, or 100° of Reaumur. Here *water only* condenses, and the alcohol in vapor passes into the *second* turn, where it condenses by the lowered temperature. If the condensed liquid is drawn off from the upper turn, it is mere phlegm, or water; while that from the second turn is alcohol, or spirit. The mode of doing this is very simple, and can be applied to any old still; so that every advantage resulting from the most complicated and expensive stills can be obtained; that is to say, plain brandy, Dutch proof, and even thirty-five and thirty-sixth proof. The alterations are effected as follows. Each turn of the worm is to be furnished with a very slender lateral pipe, ending in a faucet and tap. A crescent shaped valve, placed just before the opening of the pipe into the worm, obliges the condensed liquid to trickle into the pipe, and a slight elbow above and below the pipe prevents any of the steam from running in the same direction. Each of these pipes follows the main worm in all its convolutions, comes out of the condenser at the same opening, and is led thence to its own receiver. The pipe of the first turn has also a second branch with a faucet, which lets out the phlegm, (which is worthless,) as it is condensed. A prover indicates the moment when the feints should be separated, as simple brandy or proof spirit is wanted. These feints are either detained in the boiler, or set aside for rectification, in all cases necessary for the last spirit that comes over, without which it is worthless.

Besides producing more spirit, and saving three-fourths out of the feints, the worm prepared as above shortens the term of distillation by one half, and consequently reduces the expense of fuel. In addition to this, and what is of more consequence, a sour wine may be distilled as well as any other, and without the least taint being perceptible in the brandy. The spirit is, of course, less in quantity, but whatever is obtained is good, and all the acid separates and flows out by the first pipe, which gives an opportunity of profiting by the acetous portion.

"*To Extinguish Fire in Distilleries.*

"A woollen blanket or rug, hung over a roller in a water-butt, is the readiest and best extinguisher.

"*To Dulcify Spirits.*

"In dulcifying, or sweetening the spirits, weigh the sugar, and dissolve it in one or more cans of the water, with which the compound is to be made up: bruise the sugar, and stir it well, till all is dissolved,

Then empty it into the cask containing the spirits; mixing all together, by drawing off several cans by the cock, and emptying them into the casks by the bung holes. Now rummage all well together, till they are perfectly compounded.

"Spirits or compounds that are strong, require no assistance in setting and becoming clear; but those that are weak must be refined by the addition of some other substance. To every hogshead of Geneva, or other spirituous compound, put six ounces of powdered alum, previously dissolved in three or four gallons of the compound: stir all well together. In the course of twenty-four hours, the whole will be rendered completely clear.

"It is a good practice to leave the bung-holes of casks (containing spirits or compounds newly made) open for several days: this improves their flavor; and renders them clear sooner than they would otherwise be.

"Table-salt thrown into the still, in the proportion of 6 ounces to 10 gallons of any liquid to be distilled, will greatly improve the flavor, taste, and strength of the spirit. The viscid matter will be fixed by the salt, whilst the volatile matter ascends in a state of great purity.

"The flavor of malt spirits is highly improved by putting 3 1-2 ounces of finely powdered charcoal, and 4 1-2 ounces of ground rice, into a quart of spirits, and letting it stand during fifteen days, frequently stirring it; then let the liquor be strained, and it will be found nearly of the same flavor as brandy.

"*To make Charcoal.*

"This is usually manufactured from coppice wood, cut every 16 years; the faggots are made into a large conical pile, covered up with clods of earth, leaving circular rows of holes from top to bottom. The wood is then kindled, and as it becomes red, the holes are regularly closed to stop the further combustion, and when the whole has been closed up, the pile is left to cool; when the black skeleton of the wood is left, which differs from the raw wood in burning without any smoke, and with little or no flame, yielding at the same time no soot, although some of the finer particles of the ashes are volatilized and adhere to the chimney. The air which passes through the burning charcoal has its oxygenous part converted into carbonic acid gas, without being, when cooled, any ways altered in bulk, although its weight by the gallon is increased.

"The air being thus rendered unfit for respiration, kills whatever animals or plants are confined in it: numerous accidents have happened of persons being suffocated by sleeping in close rooms with a charcoal fire.

"The charcoal for medical purposes should, like that for gunpowder, be made of soft woods, as alder, heated in iron long necks

until no volatile matter is given out. Small quantities may be made by burying wood under sand in a covered crucible, and exposing the whole to fire.

"*To make Spirit of Wine.*

"Spirit of wine, as it is called, was formerly, and is still, in southern countries, obtained by distilling wine for its yield of brandy, and then slowly abstracting the more volatile part of the brandy, by a small fire and the use of tall vessels. In England, spirit of wine is, in general, obtained from ground meal, either of wheat, rye, or barley, with from one-tenth to one-third of the same, or another grain, malted and ground, and then called malt spirit; or from treacle, and then called molasses spirit; some is also made from apples, or cider wash. The fermentation is carried on quicker and farther than in brewing or making cider, in order that all the sugar in the wash may be converted into spirit and water. The infusion of the malt and meal is made so strong, that its specific gravity is from 1.083 to 1.14, (whereas that for strong ale is generally 1.06, and for small beer, 1.015 to 1.04) and is mixed with a large quantity of yeast, added by successive portions, until, in about ten days, the specific gravity is reduced to 1.002, when it is fit for the still In general, a third part is drawn off at the first stilling, under the name of low wines, the specific gravity being about 0.975. On re-distilling the low wines, a fiery spirit, of a milky cast, comes over first, and is returned into the still: then follows the clean spirit: when it begins to grow too watery, the remaining spirit that comes over, as long as it will take fire, is kept apart, under the name of feints, and mixed with the next parcel of low wines. Instead of these trials, the head of the still may have the bulb of a thermometer inserted into it, and by observing the temperature of the steam, an accurate judgment may be formed of the strength of the spirit that distills over. It is computed, that 100 gallons of malt or corn wash will produce about 20 of spirit, containing about half its weight of water; molasses wash, 22 gallons; cider wash, 15 gallons. The best French wines yield from 20 to 25 gallons. The spirit thus obtained is for chemical and pharmaceutical purposes mixed with water, to separate the oil it contains, and re-distilled several times in tall vessels, with a very gentle heat, until its specific gravity is reduced to 0.82; though that usually sold is only 0.837, at 60 deg. Fahrenheit. By distilling spirit of wine with purified pearl ashes, salt of tartar, muriate of lime, lime, or common salt, all previously heated to redness, and cooled, its specific gravity may be reduced still lower, even as low as 0.792, at 68 deg. Fahrenheit; but there is reason to think, that it not only parts with water, but also undergoes some change, or acquires some impregnation by these additions, as its taste

is altered. This spirit of wine, from which every particle of water is separated, is called by the Arabic name of alcohol.

"*To make Ether.*

"The old chemists, after mixing spirit of wine with an equal weight of oil of vitriol, digested it for a long time, and then distilled the most volatile part, which was called the sweet oil of vitriol. At present, the mixture, whose temperature is considerably increased, is placed in a heated sand bath and distilled, without being suffered to cool until one half the quantity of the spirit is come over, meanwhile, an inflammable gas also passes over. If the distillation is continued, sulphurous acid passes over, and a light yellow sweet oil of wine; the black residuary sulphuric acid contains charcoal diffused through it, which may be separated by admixture with water and filtration. If fresh alcohol is poured on the residuum, more ether may be obtained by distillation. The unrectified ether, as the first product is called, contains both water and alcohol: dry salt of tartar separates the first, and then pouring off the upper liquid, and adding dry muriate of lime in powder, this salt unites with the alcohol, and the ether swims on the solution.

"*To imitate Foreign Spirits.*

"A great desideratum among distillers, in this country, is to imitate foreign spirits, such as brandy, rum, geneva, &c. to a tolerable degree of perfection; but, notwithstanding the many attempts that are daily made for this purpose, the success, in general, has been indifferent. The general method of distilling brandies in France, differs in nothing from that practised here, with malt-wash or molasses; nor are the French distillers in the least more cleanly in their operations. Still, though brandy is distilled from wine, experience tells us that there is a great difference in the grapes from which the wine is made. Every soil, every climate, every kind of grape, varies with regard to the quantity and quality of the spirit distilled from them. A large quantity of brandy is distilled in France during the time of the vintage: for the poor grapes that prove unfit for wine, are usually first gathered, pressed, their juice fermented, and instantly distilled. It is a general rule with them, not to distil wine that will fetch any price *as wine;* for, in this state, the profits obtained are much greater than when the wine is reduced to brandies.

For a long time, this liquor was distilled only from spoilt wine, and afterwards from the dregs of beer and wine; and when, instead of these, the distillers employed rye, wheat, and barley, it was considered as a wicked and unpardonable misuse of corn.

"*To condense Vapors in Distillation.*

"This is best accomplished by means of a disk attached to the tube of the still which has the figure of a lens, flattened as much as possible and made of copper. It produces a much better and more rapid effect than the worms employed for that purpose.

"*To make British Brandy.*

To sixty gallons of clean rectified spirit put 1 pound of sweet spirit of nitre, 1 pound of cassia buds ground, 1 pound of bitter almond meal, (the cassia and almond meal to be mixed together before they are put to the spirits), 2 ounces of sliced orris root, and about 30 or 40 prune stones pounded; agitate the whole well together, two or three times a day, for three days or more: let them settle, then pour in 1 gallon of the best wine vinegar; and add to every 4 gallons 1 of foreign brandy.

"*To imitate Cogniac Brandy.*

"English spirits, with proper management, are convertible into brandy, hardly distinguishable from foreign, provided the operation is neatly performed. The best, and indeed the only method of imitating the French brandies to perfection, is by an *essential oil of wine*, this being the very ingredient which gives the French brandies their flavor. It must, however, be remembered, that, in order to use even this ingredient to advantage, a pure *tasteless spirit must first be produced.*

"To prepare the oil of wine, dissolve some cakes of dry wine-lees in six or eight times their weight of water, distil the liquor by a slow fire, and separate the oil by a separatory glass, reserving for the nicest uses that which comes over the first, the succeeding oil being coarser and more resinous. This oil of wine should be dissolved in alcohol, otherwise it will soon grow ransid.

"To imitate Cogniac brandy, it will be necessary to distil the essential oil from Cogniac lees, and the same for any other kind of brandy. The proof, it may be easily accomplished, by using a spirit *rectified above proof*, which, intimately combined with the essential oil, may be reduced to a proper standard by distilled water. The softness may, in a great measure, be obtained by distilling and rectifying the spirit over a gentle fire; and, what is wanting, when the spirit is first made, will be supplied by time. Treacle or burnt sugar gives the spirit a fine color, nearly resembling French brandy; but as its color is deep, a large quantity must be used: and the bubble proof is greatly heightened by the tenacity imparted to the liquor by the treacle, while the spirit acquires from the mixture a luscious taste. A much smaller quantity of burnt sugar than of treacle will, however, be sufficient for coloring the same quantity of spirits, and it acquires an agreeable bitterness. The burnt sugar is prepared by dissolving a proper quantity of sugar in a little water, and scorching it over the fire till it acquires a black color.

"*To procure the Oil af Wine.*

"This oil should be distilled from the thick lees of French wines, because of the flavor, and when procured must be kept ready for use. It must be mixed with the purest spirit of wine, such as alcohol; by

which means it may be preserved a long time. The bottle should be shaken before the oil is used.

"When the flavor of the brandy is well imitated by a proper portion of the essential oil, and the whole reduced into one nature, yet other difficulties still exist; which are, the color, the softness, and the proof. The proof may be effected by using a spirit above proof, which after being mixed with the oil may be let down to any strength with water. The softness will be attained by getting a spirit that has been distilled by a slow fire; and the color may be regulated by the use of brandy coloring.

"*To make Brandy from Treacle.*

"Spirit distilled from common treacle dissolved in water, should be fermented in the same manner as the wash for common malt spirit. If fresh wine-lees abounding in tartar, are well fermented with molasses, the spirit will acquire a greater vinosity and briskness, and approach the nature of foreign brandy. If the molasses spirit, brought to the common proof of strength, is found not to have sufficient vinosity, it will be proper to add some sweet spirits of nitre; and if the spirit has been properly distilled by a gentle heat, it may, by this addition only, be made to pass with ordinary judges as French brandy. Great quantities of this spirit are used in adulterating foreign brandy, rum, and arrack. Much of it is also used alone, in making cherry brandy and other cordials by infusion: in all which many prefer it to foreign brandies. Molasses, like all other spirits, is entirely colorless when first extracted; but distillers give it, as nearly as possible, the color of foreign spirits.

"*To make Brandy from Potatoes.*

"Potatoes by distillation afford brandy of the best quality, not to be distinguished from that obtained from wine. One thousand lbs. pressed, fermented, and distilled daily, affords from 60 to 70 quarts of good brandy. The residue of the potatoe, after the spirit is extracted, is used as food for cattle.

"*To improve British Brandy.*

"Take thirty gallons of fine English Brandy, three ounces of tincture of Japonica, and nine ounces of spirit of nitre dulcis. Incorporate these with some of the spirit, and then put it into the rest of the liquor, and stir it well about. This will make thirty gallons of brandy, and if it be a good clean spirit, it will much resemble French brandy.

"*To prepare Tincture Japonica.*

"Take of the best English saffron, and dissolve one ounce; mace bruised, one ounce; infuse them in a pint of brandy till the whole tincture of the saffron is extracted, which will be in seven or eight days; then strain it through a linen cloth, and to the strained tincture add two ounces of tartar Japonica powdered fine; let it infuse till the tincture is wholly impregnated.

" *To make Jamaica Rum.*

" This is obtained from the refuse of the raw sugar manufactories, by taking equal quantities of the skimmings of the sugar pans, of lees or returns as they are commonly called, and of water, and to 100 gallons of this wash are added ten gallons of molasses. This affords from 10 to 17 gallons of proof rum, and twice as much low wines; it is sometimes rectified to a strength approaching to spirit of wine, and is then called double distilled rum.

" *To imitate Jamaica Rum.*

" To imitate Jamaica rum, it is necessary to procure some of the tops, or other parts of the sugar canes, and put them in a still, in the proportion of a pound weight to two gallons of pure flavorless spirit, and one gallon of pure water. The distillation may be carried on by a brisk heat, provided there is a quantity of common salt, (in the proportion of an ounce to each gallon of liquid in the still,) to prevent the mucilaginous matter from arising with the spirit. The product when rectified and colored by burnt sugar, will possess every character of excellent rum.

" *To obtain Rum from Molasses.*

" Mix two or three gallons of water with one gallon of molasses, and to every 200 gallons of this mixture add a gallon of yeast. Once or twice a day the head as it rises is stirred in, and in three or four days, 2 gallons more of water is added to each gallon of molasses originally used, and the same quantity of yeast as at first. Four, five, or six days after this, a portion of yeast is added as before, and about an ounce of jalap root powdered, (or in winter one ounce and a half), on which the fermentation proceeds with great violence, and in three or four days, the wash is fit for the still: one hundred gallons of this wash is computed to yield twenty-two gallons of spirit from one to ten over proof.

" *To prepare Gin as in Holland.*

" The grist is composed of ten quarters of malt, ground considerably finer than malt distillers' barley grist, and three quarters of rye-meal; or, more frequently of ten quarters of rye and three quarters of malt-meal. The ten quarters are first mashed, with the least quantity of cold water it is possible to blend it with, and when uniformly incorporated, as much boiling water is added as forms it into a thin batter: it is then put into one, two, or more casks, or gyle tons, with a much less quantity of yeast than is usually employed by our distillers. Generally, on the third day, the Dutch distillers add the malt or rye-meal, prepared in a similar manner, but not before it comes to the temperature of the fermenting wash; at the same time adding as much yeast as at first.

" The principal secret is the management of the mashing part of the business, in first thoroughly mixing the malt with the cold

water, and in subsequently adding the due proportion of boiling water, that it may still remain sufficiently diluted after the addition of the fine meal; also in well rousing all together in the back, that the wash may be dilute enough for distilling, without endangering its burning to the bottom.

"*Rectification into Hollands Gin.*

"To every 20 gallons of spirit of the second extraction, about the strength of proof, take of juniper berries, 3 lbs. oil of juniper, 2 oz. and distill with a slow fire, until the feints begin to rise, then change the receiving can; this produces the best Rotterdam gin.

"An inferior kind is made with a still less proportion of berrics, sweet fennel seed, and Strasburg turpentine, without a drop of oil of juniper, and a better sort, but inferior to the Rotterdam, is made at Weesoppe. The distiller's wash at Scheedam and Rotterdam, is lighter than at Weesoppe. Strasburg turpentine is of a yellowish-brown color, a very fragrant, agreeable smell, yet the least acrid of the turpentine. The juniper berries are so cheap in Holland, that they must have other reasons than mere cheapness for being so much more sparing of their consumption than our distillers.

"*To make Malt Spirit.*

"Mix 60 quarters of barley grist, ground low, and 20 quarters of coarse ground pale malt, with 250 barrels of water, at about 170 degrees Fahrenheit. Take out 30 barrels of the wort, and add to this 10 store of fresh porter yeast, and when the remaining wort is cooled down to 55 degrees, add 10 quarters more malt, previously mixed with 30 barrels of warm water; stir the whole well together, and put it to ferment along with the reserved yeasted wort: this wash will be found to weigh, by the saccharometer, from 28 to 32 lbs. per barrel, more than water. In the course of 12 or 14 days, the yeast head will fall quite flat, and the wash will have a vinous smell and taste, and not weigh more than from 2 to 4 lbs. per barrel more than water. Some now put 20 lbs. of common salt, and 30 lbs. of flour, and in 3 or 4 days put it into the sttll, previously stirring it well together. Every 6 gallons of this wash will produce one gallon of spirit, at from 1 to 10 over proof; or 18 gallons of spirit from each quarter of grain.

"*English Geneva.*

"The best English Geneva is made as follows: Take of juniper berries, 3 lbs.; proof spirit, 10 gallons; water, 4 do. Draw off by a gentle fire, till the feints begin to rise, and make up the goods to the required strength with clear water.

"*To Distil Spirit from Carrots.*

"Take one ton and eight stone of carrots, which, after being exposed a few days to dry, will weigh about 160 stone. The whole being cut, put one-third of the quantity into a copper, with twenty-

four gallons of water, and after covering them up close, reduce the whole into a pulp. The other two-thirds are to be treated in the same manner, and as the pulp is taken from the copper, it is carried to the press, where the juice is extracted with great facility. The liquor obtained will amount to 200 gallons, and will be of a rich, sweet taste, resembling wort. It is then put into the copper with one pound of hops, and suffered to boil about five hours, when it is put into the cooler, to remain till the heat comes down to 66 degrees. From the cooler it is discharged into the vat, where six quarts of yeast are put to it, in the usual manner. Let it work forty-eight hours, or till 58 deg., when the yeast begins to fall. Then heat 12 gallons of unfermented juice, and put it to the liquor, and the heat will be raised to 66 deg. Work afresh for twenty-four hours longer, the liquor gradually lowering, as before, from 66 to 58°. Tun the whole into half-hogsheads, to work from the bung. After standing three days in the casks, fifty gallons may be drawn off, which is rectified the next day without any additional substance. Twelve gallons of spirit will be obtained.

"*To make Arrack.*

"Arrack is no other than a spirit produced by distillation from a vegetable juice called toddy, which flows out of the cocoa-nut tree. The operator provides himself with a parcel of earthen pots, climbs up the trunk of a cocoa-nut tree; and when he comes to the boughs, he cuts off one of the small knots or buttons, and applies the mouth of a bottle to the wound, fastening it to the bough with a bandage; in the same manner he cuts off others, and proceeds till the whole number is employed; this done, he leaves them until the next morning, when he takes off the bottles, which are mostly filled, and empties the juice into the proper receptacle. When a sufficient quantity is produced, the whole, put together, is left to ferment. When the fermentation is over, and the liquor is a little tart, it is put into the still, and fire being made, the still is suffered to work as long as that which comes off has any considerable taste of spirit. The liquor thus procured is the low wine of arrack; and is distilled again to separate some of its watery parts, and rectify it to that very weak kind of proof-spirit in which state we find it.

"Tungusian arrack is a spirituous liquor made by the Tartars of Tungusia, of mare's milk, left to sour, and afterwards distilled twice or thrice between two earthen pots closely stopped, whence the liquor runs through a small wooden pipe.

"*To Fine Spirits.*

"Mix a small quantity of wheat flour in water as if for making paste, and pour the same into the vessel. The whole is then to be well-roused, and in a short time the contents will become bright.

" *To Extract Alcohol from Potatoes.*

" Take 100 lbs. of potatoes well washed, dress them by steam, and let them be bruised to powder with a roller, &c. In the mean time take 4 lbs. of ground malt, steep it in lukewarm water, and then pour into the fermenting back, and pour on it twelve quarts of boiling water; this water is stirred about, and the bruised potatoes thrown in, and well stirred about with wooden rakes, till every part of the potatoes is well saturated with the liquor.

" Immediately, six or eight ounces of yeast is to be mixed with twenty-eight gallons of water of a proper warmth to make the whole mass of the temperature of from 59 to 66 degrees; there is to oe added half a pint to a pint of good brandy.

" The fermenting back must be placed in a room, to be kept by means of a stove at a temperature from 66 to 72 degrees. The mixture must be left to remain at rest.

" The back must be large enough to suffer the mass to rise seven or eight inches without running over. If, notwithstanding this precaution, it does so, a little must be taken out, and returned when it falls a little; the back is then covered again, and the fermentation is suffered to finish without touching it—which takes place generally in five or six days. This is known by its being perceived that the liquor is quite clear, and the potatoes fallen to the bottom of the back. The fluid is decanted, and the potatoes pressed dry.

" The distillation is by vapor, with a wooden or copper still on the plan of Count Rumford. The product of the first distillation is low wines.

" When the fermentation has been favorable, from every 100 lbs. of potatoes, six quarts and upwards of good brandy, of 20 degrees of the areometer, are obtained, which, put into new casks, and afterwards browned with burnt sugar, like the French brandies, is not to be distinguished from them.

" One thousand pounds of potatoes at twice, gives sixty to seventy quarts of good brandy. The residue of the distillation is used as food for stock.

" *To Extract Potash from Potatoe Tops.*

" It is necessary to cut off the potatoe tops the moment that the flowers begin to fall, as that is the period of their greatest vigor; they must be cut off at four or five inches from the ground, with a very sharp knife. Fresh sprouts spring, which will not only answer all the purposes of conducting the roots to maturity, but tend to an increase of their volume, as they (the sprouts) demand less nourishment than the old top. The tops may be suffered to remain on the ground where cut; in 8 or 10 days they are sufficiently dry without turning, and may be carted home or to a corner of the field, where a hole is to be dug in the earth, about 5 feet square and 2 feet deep, (the combus-

tion would be too rapid, and the ashes cool too quick, and thereby diminish the quantity of alkali were they burnt in the open air). The ashes must be kept red-hot as long as possible: when the fire is strong, tops that are only imperfectly dried may be thrown in, and even green ones will then burn well enough.

"The ashes extracted from the hole must be put in a vessel, and boiling water be poured upon it, as then the water must be evaporated: for these two operations potatoe tops may be used alone as firing in the furnace, and the ashes collected. There remains, after the evaporation, a dry saline reddish substance, known in commerce under the name of *salin;* the more the ashes are boiled, the greyer and more valuable the *salin* becomes.

"The *salin* must then be calcined in a very hot oven, until the whole mass presents an uniform reddish brown. In cooling it remains dry, and in fragments, blueish within, and white on the surface; in which state it takes the name of potass.

The ashes, exhausted of their alkaline principle, afford excellent manure for land intended to be planted with potatoes.

"*To make Brandy from Beet Root.*

"For the preparation of brandy, the water used in the first boiling of the roots, is boiled again, and poured out on the residuum from the first expression of the pounded roots; this must stand for a day or two, after which it is expressed, and the remaining dry pulp serves as a good food for cattle. The juice obtained in this way is mixed with the waste part of the syrup and the mucilage which remains after the expression of the saccharine crystals, and all boiled together till half of it is evaporated. The liquor is then poured into a coop exposed to a temperature of 45 deg. Fahrenheit, and cooled to 65 deg. Having added a proportionate quantity of yeast, it is left to ferment, and in 3 or 4 days after the distillation may be undertaken.

"*To obtain Sugar from Beet Root.*

"The beet roots best calculated for the extraction of sugar, are those which have a soft flesh, whitish towards the edges, and not growing above ground. After being cleaned, they are boiled, cut into pieces and pounded in a wooden trough with wooden stampers, and afterwards pressed. The juice thus obtained is immediately put into a polished copper kettle and simmered, during which time the scum must continually be taken off. To one hundred quarts of this juice add two ounces or less of slackened lime, diluted so as to have the appearance of milk, and continue the boiling till the juice is thickened to half of it. Having strained it through a woollen cloth, thicken it to the consistency of a syrup, which afterwards is put into glass, stone, or wooden vessels. These being placed near a moderate fire, saccharine crystals appear, which being freed by expression from the mucilaginous juice, a very good raw sugar is obtained.

To make Proof Spirit.

"The London College mentions no proportions, but requires the specific gravity of .930; the Dublin advises the mixture of four measures of spirit with three of water, and the Edinburg College orders equal measures of their alcohol and water, the specific gravity of which mixture they quote as .935. The chemists in London are in the habit of making their proof spirit, by taking half spirit of wine and half water, whenever it is required, as they seldom or never keep it in that state.

To make Tincture of Salt of Tartar.

"Melt 6 oz. of salt of tartar in a crucible; powder it while hot, and immediately pour upon the powder a quart of spirit of wine, and digest it for several days.

Tincture of Antimony.

"Take of crude antimony, 1 oz.; salt of tartar, and salt petre, each 2 oz. Mix and throw them into a red hot crucible; when melted, pour them into an iron mortar, powder the mass, while hot, and before it grows cold put it into a bottle with a sufficient quantity of spirit of wine.

"This and the preceding are to be considered as alcohol made without distillation, but they receive an alkaline taint, which renders them impure.

"All these spirits are stimulants, but more employed as luxuries than medicines."

"ESSENTIAL AND OTHER OILS.

Oil of Chamomile.

"This is obtained from the flowers, and is stomachic. One pound will yield a drachm; 82 pounds will yield from 13 to 18 drachms. It is of a fine blue, even if distilled in glass vessels.

Oil of Mint.

"Obtained from the dried plant; 6 pounds of fresh leaves will yield 3 1-2 drachms; and 4 lbs. dried will yield 1 1-2 ounce. It is stimulant, carminative, and antispasmodic.

Oil of Peppermint.

"Obtained from the dried plant; 4 lbs. of the fresh herb will yield 3 drachms. In general it requires rectification to render it bright and fine. It is stimulant and carminative.

Oil of Pennyroyal.

Obtained from the herb when in flower; 3 pounds will yield 6 drachms; emmenagogue.

Oil of Sassafras.

"Obtained from the sassafras root; 24 pounds will yield 9 oz.; 30 pounds will yield 7 ounces and one drachm; and 6 pounds will yield two ounces."

"*Oil of Wormwood.*

"Obtained from the herb; stomachic; 25 pounds of green wormwood will yield from 6 to 10 drachms of oil; 4 pounds of dry will yield one ounce, and 18 pounds only 1 1-2 troy ounces.

"*Oil of Turpentine.*

"Distilled, in Europe, from common turpentine, with the addition of about 6 times as much water; but in America, where the operation is carried on upon a very large scale, no water is added, and its accidental presence is even dreaded, lest it should produce a disruption of the distilling apparatus.

"*To rectify Oil of Turpentine.*

"Pour three parts of turpentine into a glass retort, capable of containing double the quantity of matter subjected to the experiment. Place this retort on a sand bath; and having adapted to it a receiver 5 or 6 times as large, cement with paste made of flour and water, some bands of paper over the place where the two vessels are joined. If the receiver is not tubulated, make a small hole with a pin in the bands of cemented paper, to leave a free communication between the exterior and interior of the receiver; then place over the retort a dome of baked earth, and maintain the fire in such a manner, as to make the essence and the water boil.

"The receiver will become filled with abundance of vapors, composed of water and ethereous essence, which will condense the more readily if all the radiating heat of the furnace be intercepted by a plate of copper, or piece of board placed between the furnace and the receiver. When the mass of oil, subjected to experiment, has decreased nearly two thirds, the distillation must be stopped. Then leave the product at rest to facilitate the separation of the ethereous oil, which is afterwards separated from the water, on which it floats, by means of a glass funnel, the beak of which is stopped by the finger.

"This ethereous oil is often milky, or merely nebulous, by the interposition of some aqueous parts, from which it may be separated by a few days' rest. The essence, thus prepared, possesses a great degree of mobility, and is exceedingly limpid.

"*Another Method.*—The apparatus employed in the preceding process may be used in the present case. Fill the retort two thirds with essence, and as the receiver is tubulated, apply to the tubulure a small square of paper moistened with saliva, to afford a free passage to the vapors. Graduate the fire in such a manner as to carry on the distillation very slowly, until a little more than half the oil contained in the retort is obtained. Separate from the product, a very small quantity of exceedingly acid and reddish water, which passes at the same time as the ethereous essence: by these means the operation is much shortened. The oil of turpentine which re

mains in the retort is highly colored, and thicker than the primitive essence. It may be used for extending fat, varnish for coarse oil painting.

"*Balsam of Turpentine, or Dutch Drops.*

"Obtained by distilling oil of turpentine in a glass retort, till a red balsam is left.

"Or, by distilling resin and separating the oils as they come over; first a white oil, then yellow, lastly a thick red oil, which is the balsam. It is stimulant and diuretic.

"*Oil of Tar.*

"Obtained by distilling tar: it is highly valued by painters, varnishers, &c. on account of its drying qualities; it soon thickens of itself, almost to a balsam: the acid spirit that comes over, with it is useful for many purposes where an acid is wanted.

"*Rectified Oil of Hartshorn, or Dippel's Oil.*

"Obtained from hartshorn, distilled without addition, rectifying the oil, either by a slow distillation in a retort, &c. no bigger than is necessary, and saving only the first portion that comes over, or with water in a common still; it is very fine and thin, and must be kept in an opaque vessel, or in a drawer, or dark place, as it is quickly discolored by light. It is antispasmodic, anodyne, and disphoretic, taken in doses of from 10 to 30 drops in water.

"*Japan Camphor.*

"This is obtained from the roots and shoots of the *laurus camphora* and *laurus cinnamomum*, as also the *capura carundu*, by distillation with water. This crude camphor is refined by sublimation with one sixteenth of its weight of lime, in a very gentle heat.

"*Camphor from Essential Oils.*

"Obtained from the oils of the labiate plants, by a careful distillation, without addition of one third of the oil; the residuum will be found to contain crystals of camphor, on separating which, and redistilling the remaining oil two or three times, the whole of the camphor may be obtained. Oil of rosemary or of sweet marjoram yields about 1 oz. of camphor from 10 of oil; of the sage 1 oz. from 8; and of lavender 1 oz. from 4, or even less of oil: that from oil of marjoram is not volatile, and although it takes fire, it soon goes out. This rosin, like the others from essential oils, may be obtained in a larger proportion, if the oil is kept in slightly stopped bottles in a cool place.

"*Spirit of Peppermint.*

"Take of the herb of peppermint, dried, 1 1-2 lbs. proof spirit, 1 gallon, water, sufficient to prevent burning. Distil off a gallon.

"*To make Coral Tooth Powder.*

"Take 4 oz. of coral, reduced to an impalpable powder, 8 oz. of very light Armenian bole, 1 oz. of Portugal snuff, 1 oz. Havannah

snuff, 1 oz. of good burnt tobacco ashes, and 1 oz. of gum myrrh, well pulverized. Mix them together, and sift them twice.

"*A good Tooth Powder.*

"To make a good tooth powder leave out the coral, and, in its place, put in pieces of brown stone ware, reduced to a very fine powder. This is the common way of making it.

"*An Astringent for the Teeth.*

"Take of fresh conserve of roses, 2 oz. the juice of half a sour lemon, a little very rough claret, and 6 ounces of coral tooth-powder. Make them into a paste, which put up in small pots; and if it dry by standing, moisten with lemon juice and wine, as before.

"*To prevent the Tooth-ache*

"Rub well the teeth and gums with a hard tooth-brush, using the flowers of sulphur as a tooth powder, every night on going to bed; and if it is done after dinner it will be best: this is an excellent preservative to the teeth, and void of any unpleasant smell.

"*A radical Cure for the Tooth-ache.*

"Use as a tooth powder the Spanish snuff called Sibella, and it will clean the teeth as well as any other powder, and totally prevent the tooth-ache; and make a regular practice of washing behind the ears with cold water every morning. The remedy is infallible.

"*To Clean the Teeth.*

"Take of good soft water, 1 quart, juice of lemon, 2 oz. burnt alum, 6 grains, common salt, 6 grains. Mix. Boil them a minute in a cup, then strain and bottle for use: rub the teeth with a small bit of sponge tied to a stick, once a week.

I want my readers to understand that there are many things contained in this book that I do not recommend, as I have never made use of them as a medicine; those that I have made use of, belongs generally in the first part of the work. This is the part that I have recommended as my system of practice. It is generally summed up in the work before the work of aurgury, with some things culled out of the Indian doctoring, and that part of the medical doctoring which belongs to surgery, with some other points. These I have thought of are real use; though one of the points in the 68th page, that is, to make a person drunk for the purpose of setting their hip joint, was put in the book before I observed it; but if one could not do it conscientiously, it may be some other one could: so I suppose it will do no harm in the book, as no person is obliged to comply with it. It was taken from M'Kenzie's Receipts. Some are put in to satisfy people's customs and fancy, and some that their virtues may be tried. And what I have said about the blood being the life, as a bible doctrine, I will site the reader in general to Moses' writings:

INDEX.

ERRATA.

Page 13, eighth line, it ought to read of one blood—Acts, xvii. 26.
Page 33, first line, it ought to read No. 5.